

Technical Guide

Plasma
(GPH11DU Chassis)
HD Models

Troubleshooting Handbook

Model : TH-42PZ80U
TH-46PZ80U
TH-50PZ80U
TH-42PZ85U
TH-46PZ85U
TH-50PZ85U
TH-42PZ800U
TH-46PZ800U
TH-50PZ800U
TH-46PZ850U
TH-50PZ850U



Panasonic Technology and Service Company
National Training

Panasonic ideas for life

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<Introduction>

1. Basic concept of how to determine the defective board

1) Verification of voltages

Normally, when there is a power problem, shutdown occurs immediately.

So, to resolve a power problem, voltage checks are necessary before shutdown.

2) Check if the power comes up after disconnecting the board under suspicion.

If power comes up (*) after disconnecting a board, the board is defective.

(*) “Power comes up” equals “no shutdown”.

2. Troubleshooting Video and Audio problems

3. Examples of video problems

4. Adjustment after PCB exchange

1) After exchanging the following boards, voltage adjustment is required.

P board, SC board, SS board => Please refer to the “Service Manual”.

Connector's Location (TH-42PZ85U)

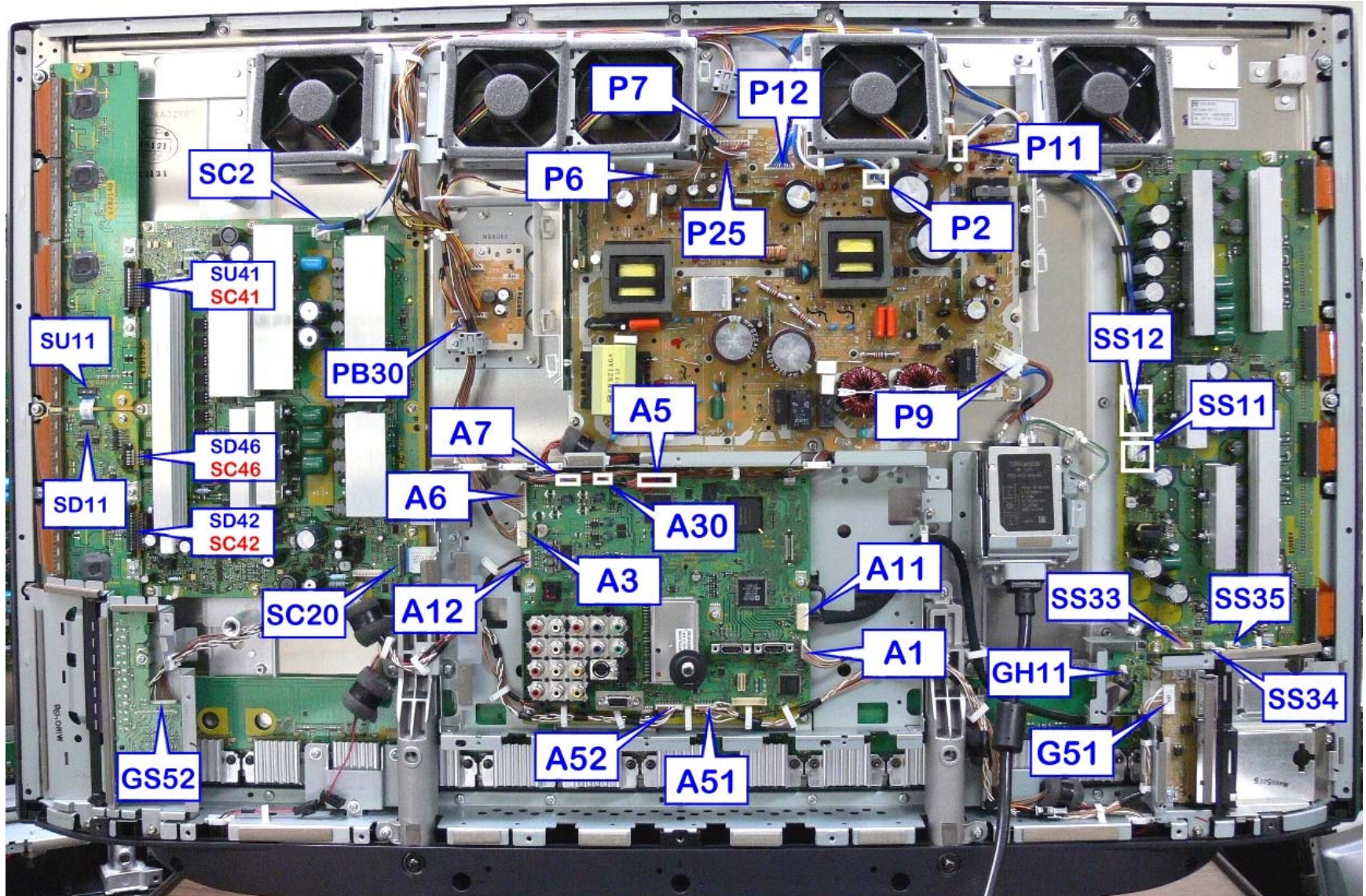


Figure 1

1. Troubleshooting Shutdown Problems

CAUTION: Some steps requires removal of connectors and sometimes PC boards removal. Do not let the TV run for more than 30 seconds while connectors or boards are disconnected.

Power LED's Response to Shutdown Operation

<LED Blinking timing>

Number of blinks	Contents	Check point
1	Communication Error with Microcomputer	D, A
2	15V SOS	D
3	3.3V SOS	D
4	Power Supply SOS	P
5	5V SOS	D
6	SC Energy recovery SOS	SC, D, P
7	SC floating voltage SOS	SC, SU, SD, D, P
8	SS Energy recovery SOS	SS, D, P
9	Panel Configuration SOS	D
10	Sub 5V SOS, Main 3.3V SOS, DTV9V SOS, Tuner SOS	A
11	Fan SOS	PB, A
12	Sound SOS	A
13	Communication Error with Peaks Lite-2	A

LED blinks 1 time

Trouble Mode	Defective Board
Communication Error	D, GS, A

Warning: Disconnect AC Power prior to making any disconnection or connection

TH-42PZ80/85/800U
TH-46PZ80/85/800U
TH-50PZ80/85/800U

TH-46PZ850U
TH-50PZ850U

Disconnect A52 on the A Board (See Figure 1). Plug in the TV and turn it on

Disconnect A9 on the A Board. Plug in the TV and turn it on

No

Is the power LED still blinking?

Yes

Replace the GS board

Unplug the TV and disconnect connectors P6 and P7 on the P Board (See Figure 1). Plug in the TV.

No

Is the TV turning on by itself with the following conditions?
Power LED = Off
SC LED = On
SS LED = ON

Yes

Replace the D board

Replace the A board

A board Connectors Location

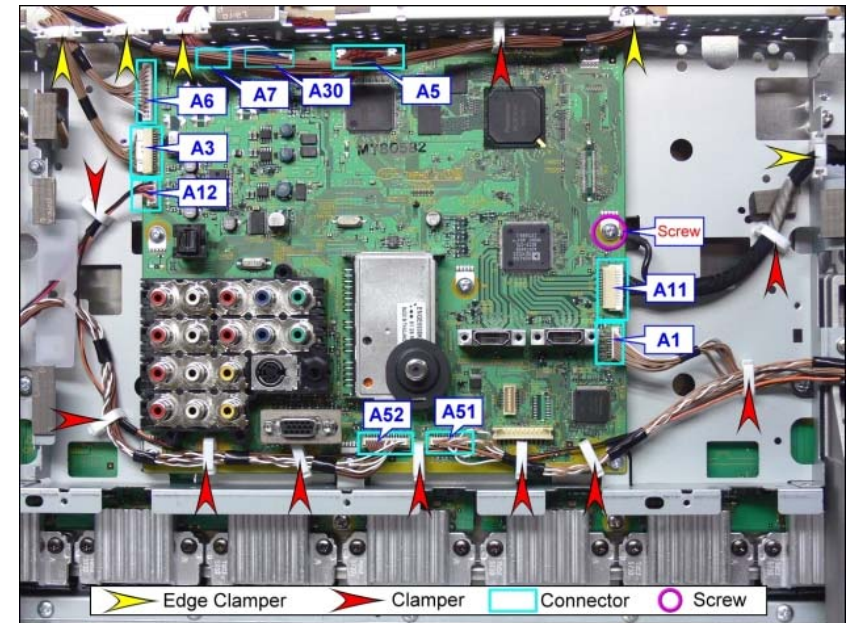


Figure 2

LED blinks 2 times

Trouble Mode	Defective Board (Possibility)
15V down SOS	P, A, SC, SS Board (P > A, SC, SS)

2 Blinks Condition can be caused by:

- Missing P15V
- A short of the P15V
- Wrong diagnostic by the D board

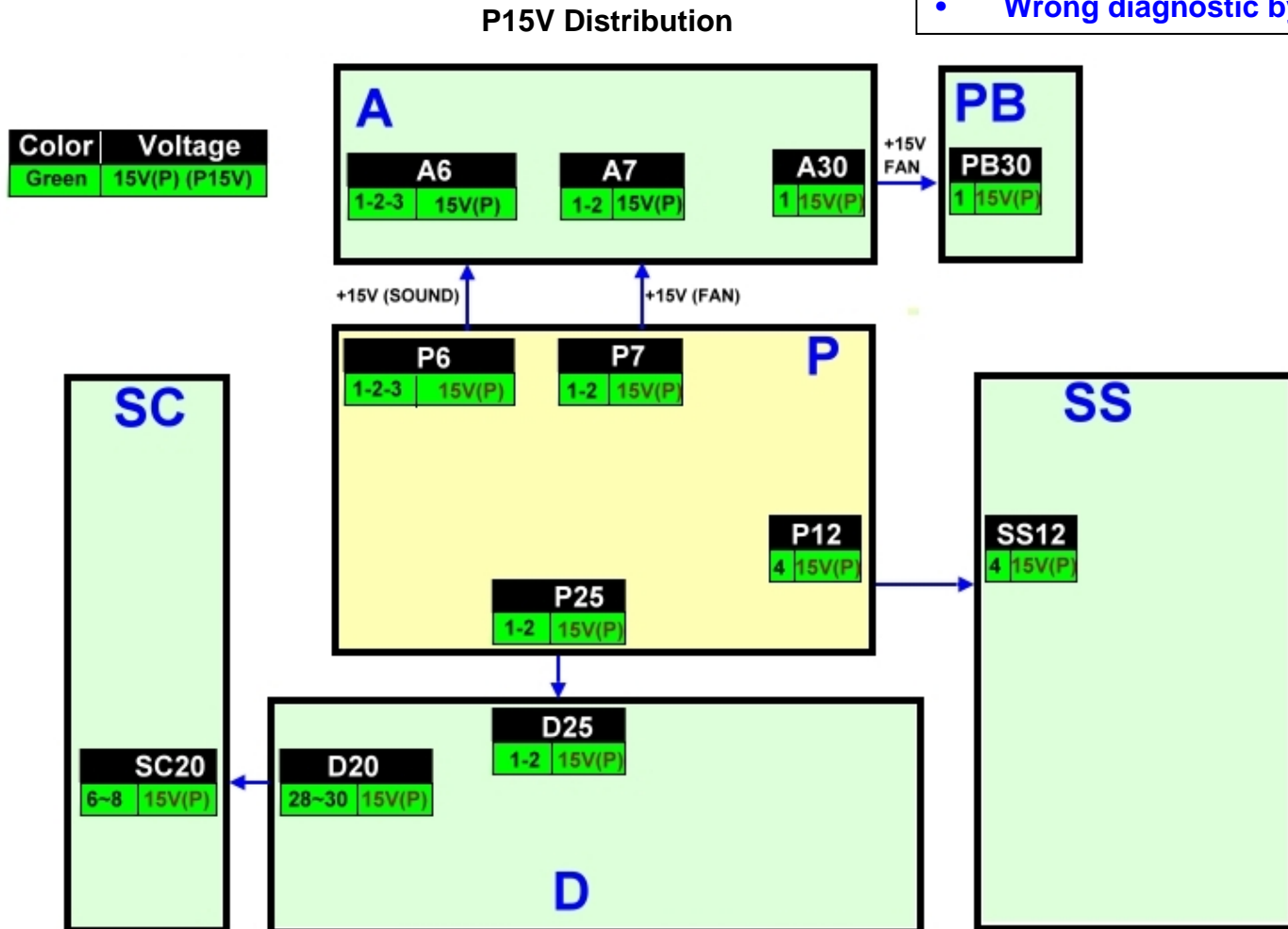
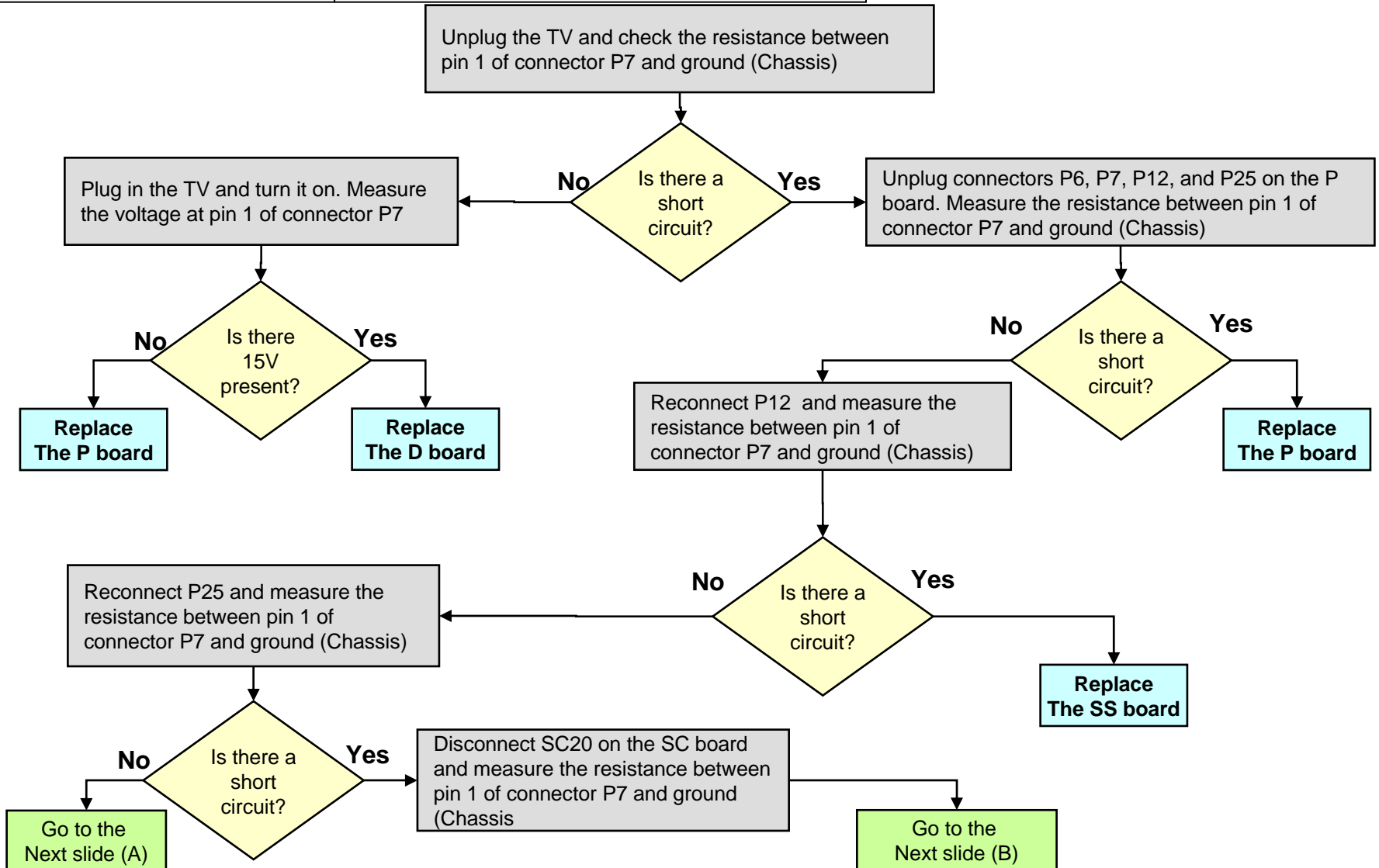


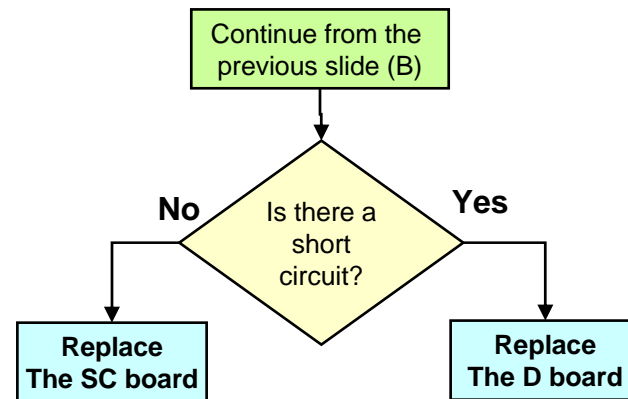
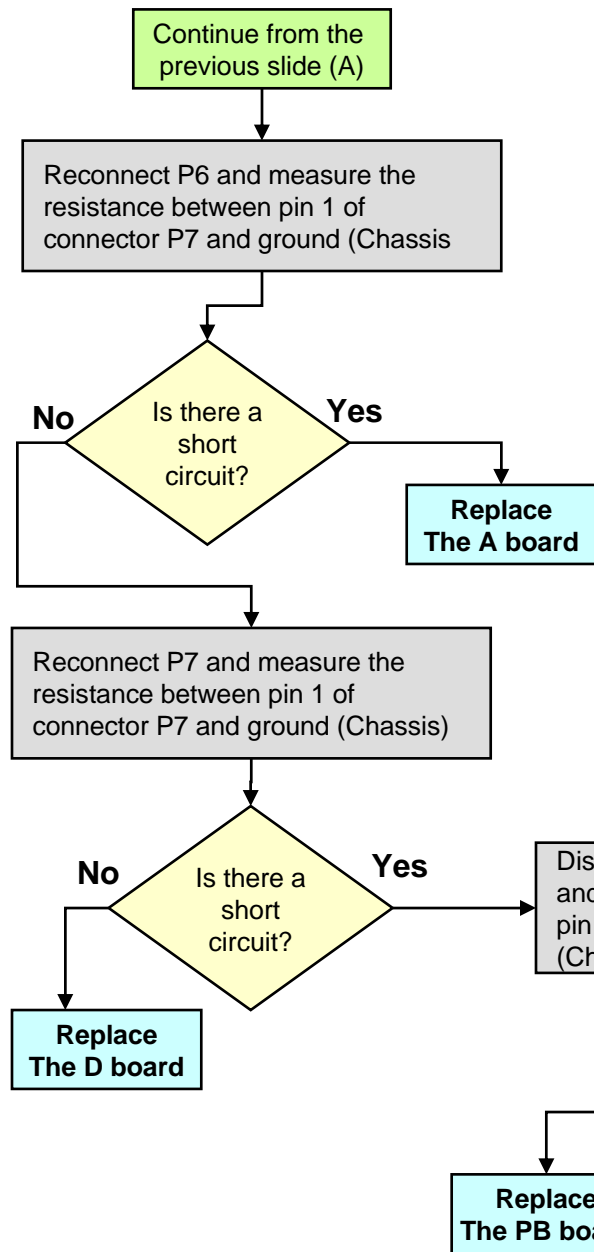
Figure 3

LED blinks 2 times

Trouble Mode	Defective Board (Possibility)
15V down SOS	P, A, D, SC, SS, PB Board (P > A, SC, SS, PB)

Warning: Disconnect AC Power prior to making any disconnection or connection





LED blinks 3 times

Trouble Mode	Defective Board
3.3V down SOS	D Board

Warning: Disconnect AC Power prior to making any disconnection or connection

Replace the D board

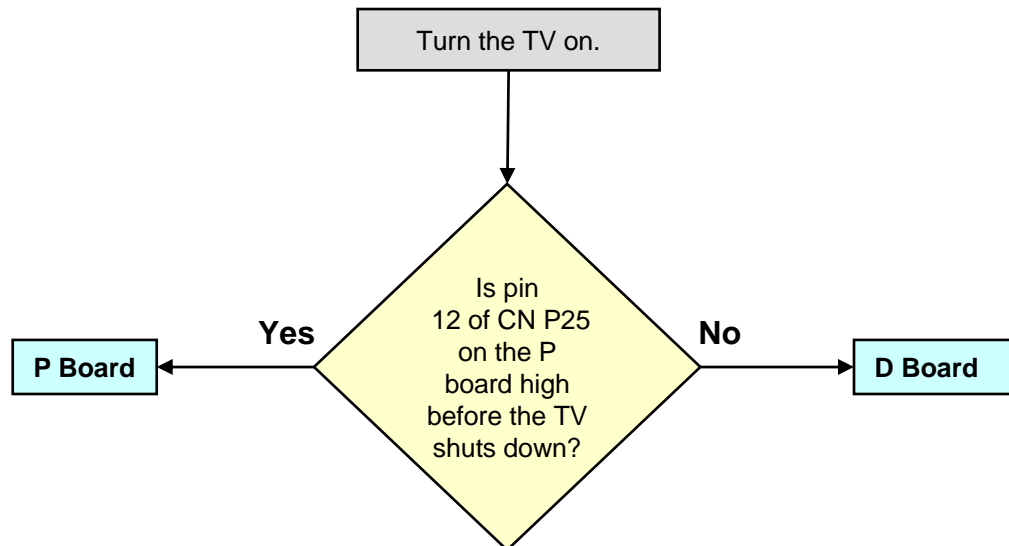
LED blinks 4 times

Trouble Mode	Defective Board
Power Supply SOS	Primarily P board followed by D board

Warning: Disconnect AC Power prior to making any disconnection or connection

4 blinks condition can be caused by:

An abnormal increase in any of the voltages generated by the power supply (Vsus, Vda, P15V, P5V, STB5V)



LED blinks 5 times

Trouble Mode	Defective Board
5V SOS	P, D, Cs, SC, SD, SS, D board or Panel

Warning: Disconnect AC Power prior to making any disconnection or connection

5 blinks condition can be caused by:

- Missing P5V
- A short of the P5V
- A short of the Vda line (Note: missing Vda from the P board does not cause 5 blinks)
- Wrong diagnostic by the D board

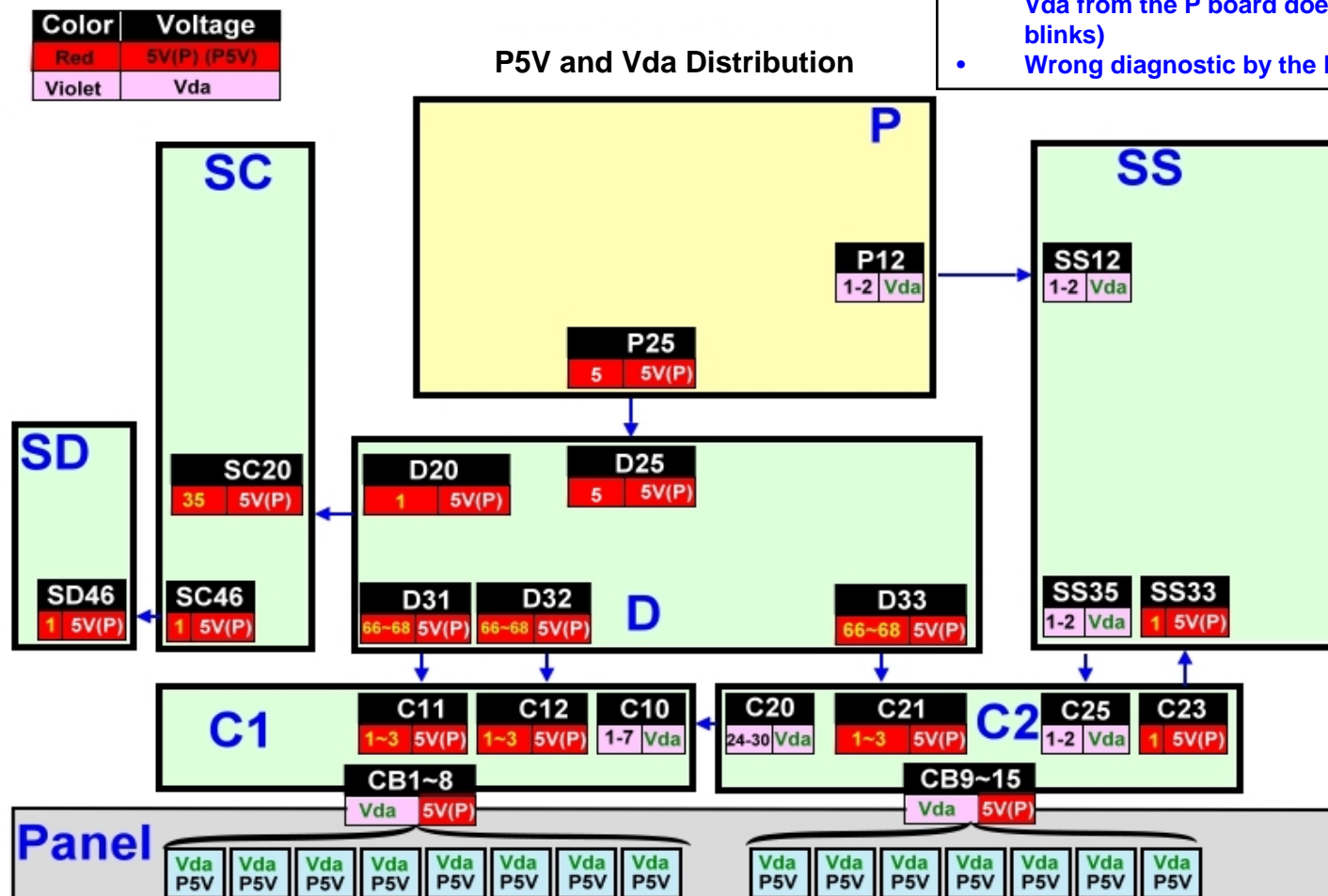
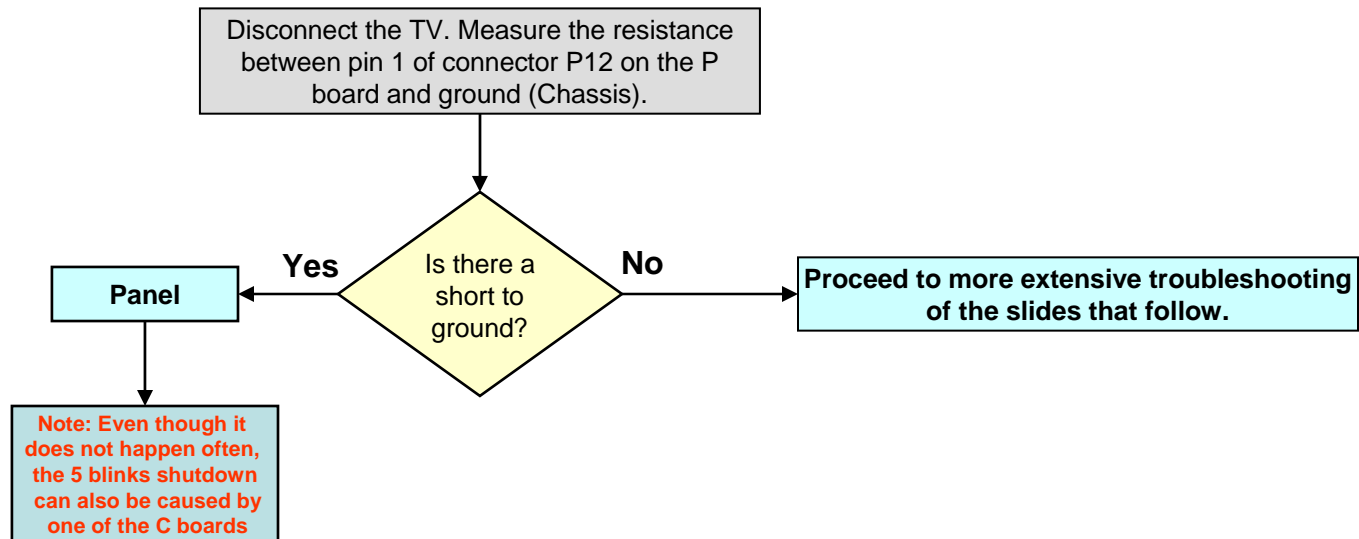


Figure 4

LED blinks 5 times (Quick Troubleshooting)

Trouble Mode	Defective Board
5V SOS	P, D, Cs, SC, SS, D board or Panel

Warning: Disconnect AC Power prior to making any disconnection or connection

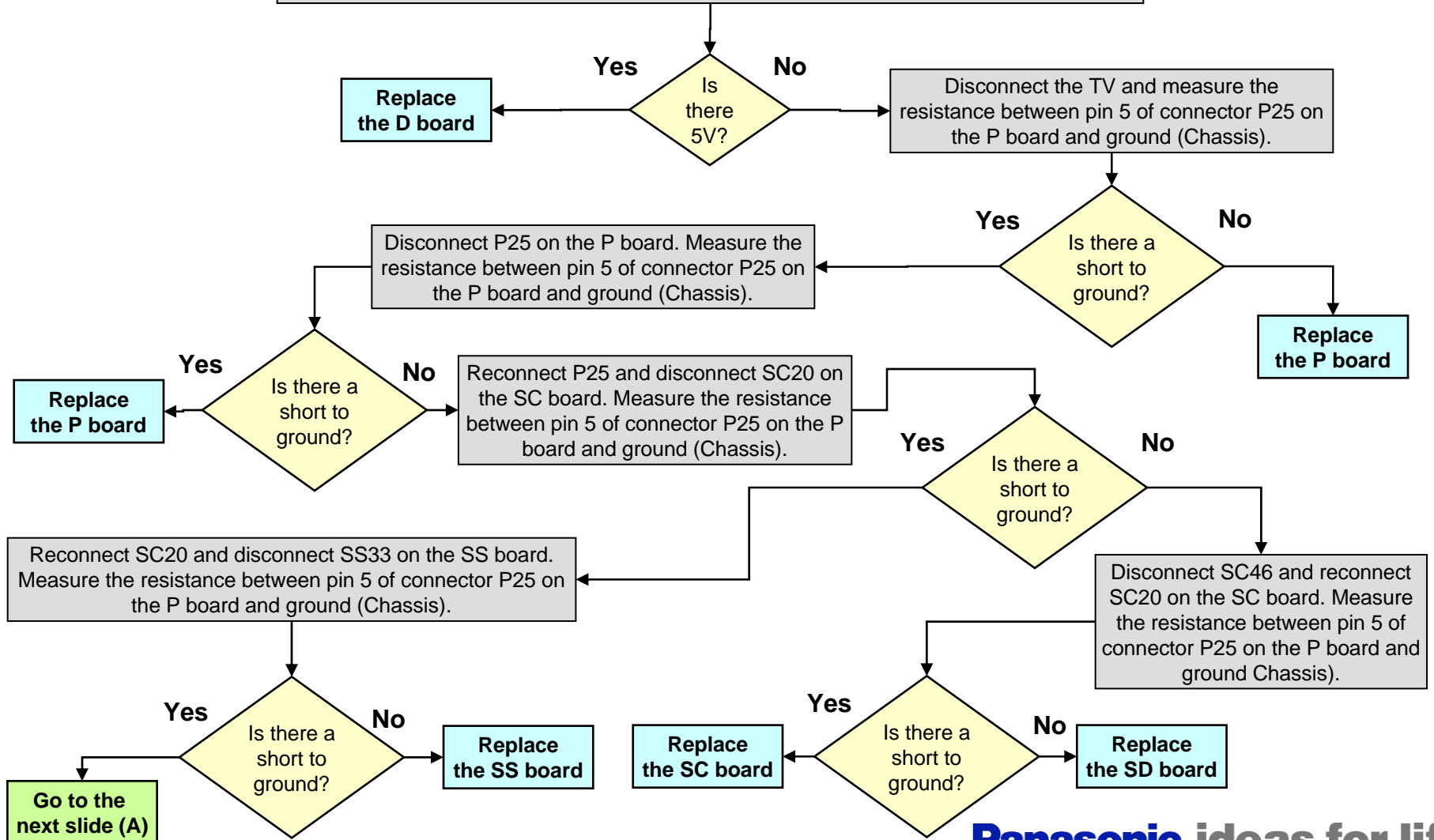


LED blinks 5 times

Trouble Mode	Defective Board
5V SOS	P, C, SC, SS,SD, D board or Panel

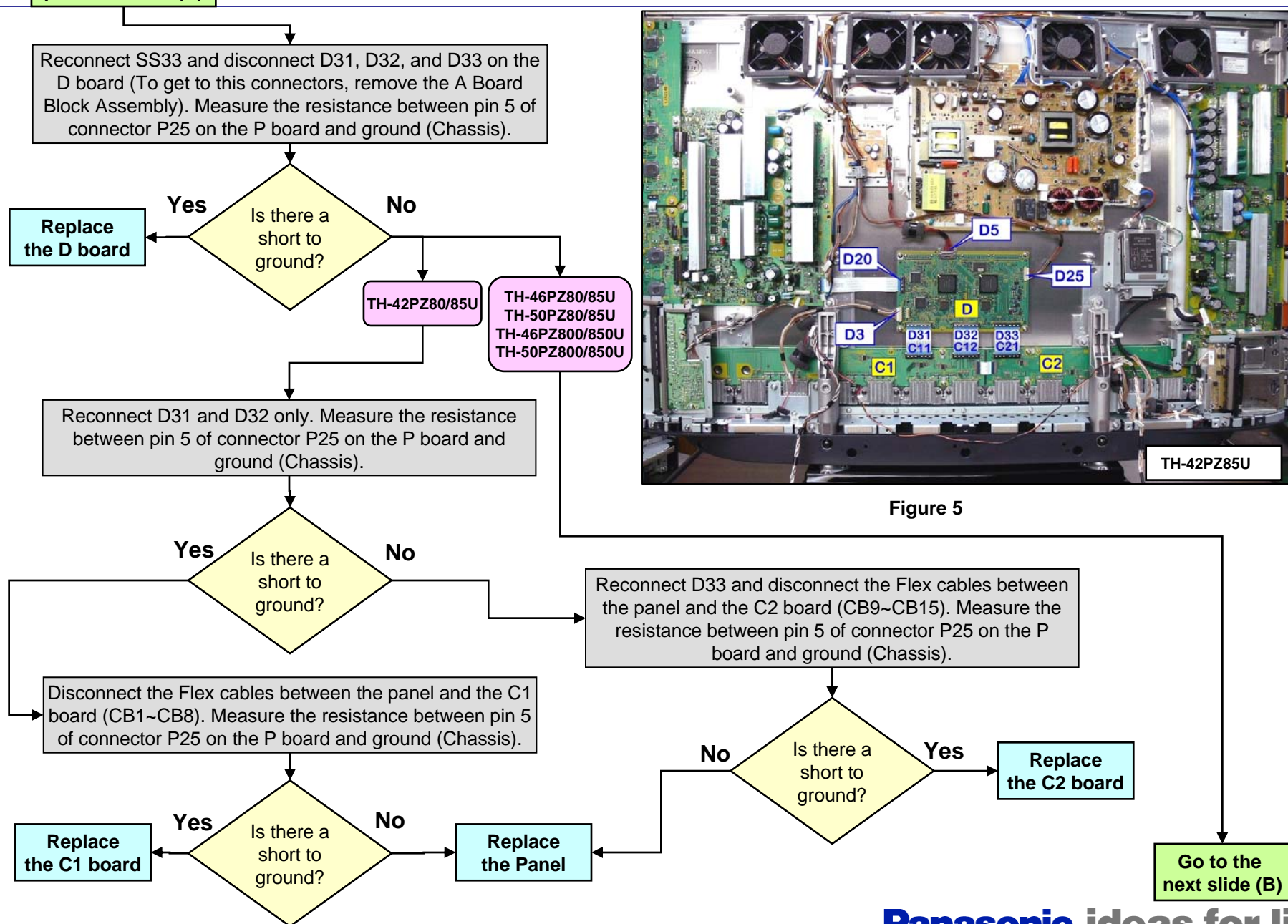
Warning: Disconnect AC Power prior to making any disconnection or connection

Use a volt-meter and place the positive probe on pin 5 of connector P25 on the P board while the negative probe is grounded. Plug in the TV and turn it on



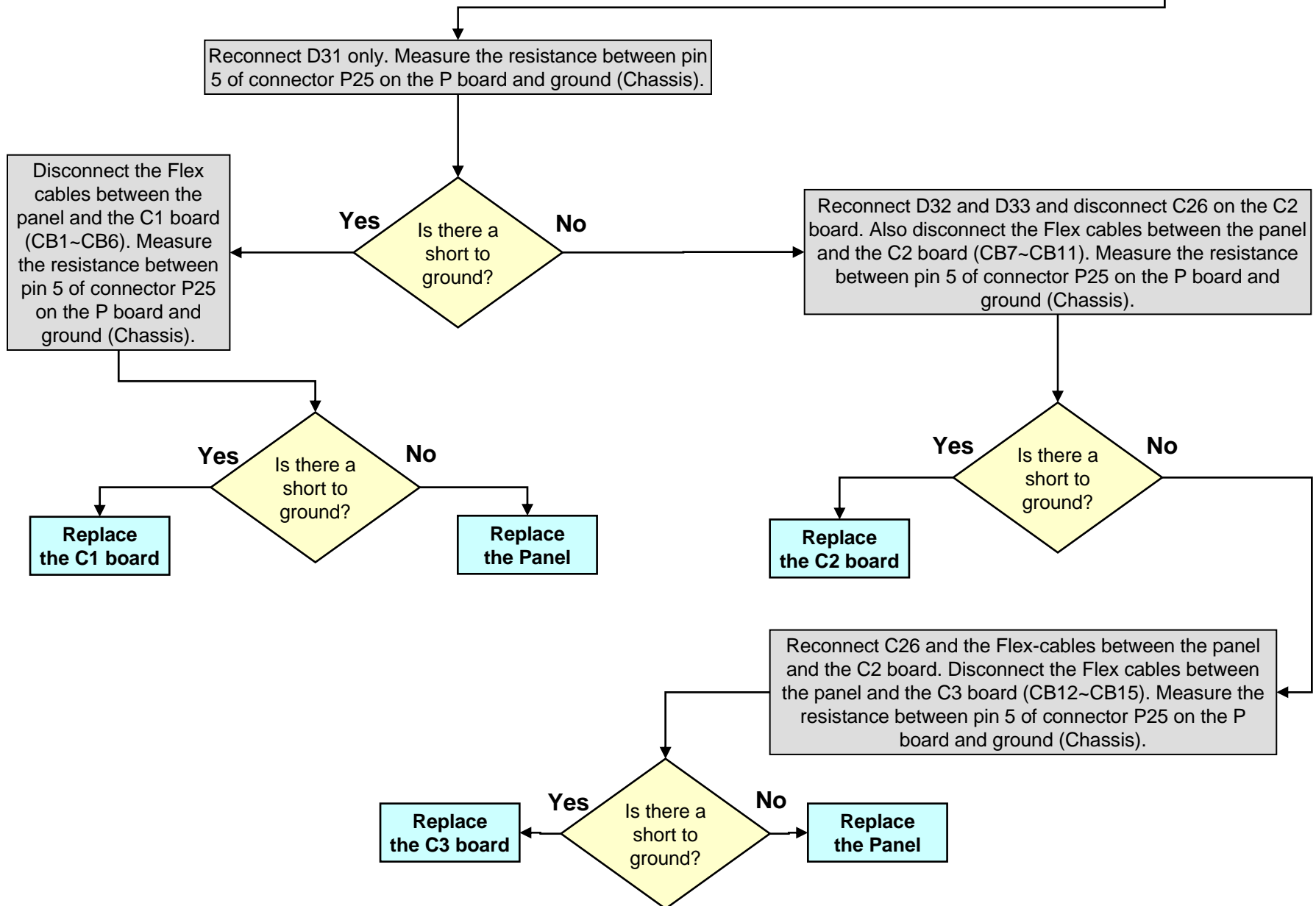
Continue from the previous slide (A)

LED blinks 5 times



LED blinks 5 times

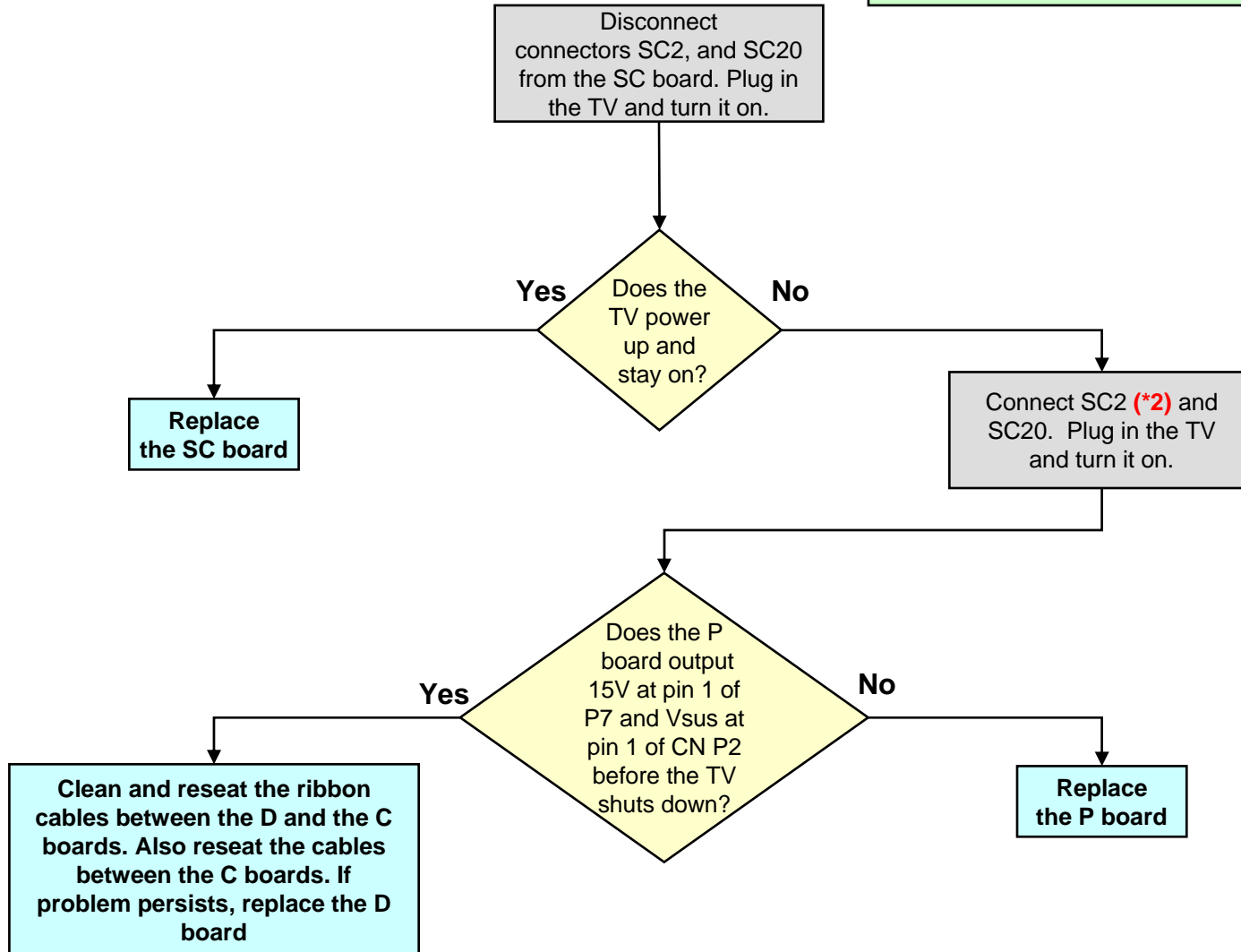
Continue from the previous slide (B)



LED blinks 6 times

Trouble Mode	Defective Board (Possibility)
SC Energy Recovery SOS	SC, P Board (SC >D> P)

Warning: Disconnect AC Power prior to making any disconnection or connection
(*2) CAUTION: Before connecting P2/SC2 or P11/SS11, discharge is necessary to prevent potential shock caused by VSUS.



SU/SD Board Isolation Procedure

Unlike previous models of Panasonic Plasma TVs, the 2008 models are designed not to turn-on if either of the SU and SD boards is disconnected. Disconnecting either causes the unit to shutdown and the power LED to blink 7 times.

Procedure to isolate the SU/SD board

For SU board: Disconnect connectors SC41/SU41, SU11/SD11.

For SD board: Disconnect connectors SC42/SD42, SC46/SD46, and SU11/SD11.

Isolating the SU/SD board does not require the removal of its mounting screws.

Place a jumper between “VF Ground” (labeled H.V. DANGER) on the SU board or SD board and coil L801 on the SC board, see figure 6 and 7.

The jumper can be connected to the floating ground screws on the SU board, which are located above and below connector SU41, see figure 2.

Caution: Before turning the unit on, confirm that the jumper is not connected to a chassis ground screw, as this will cause severe damage to the unit. Confirm proper connection by measuring continuity between floating ground and chassis ground. The resistance should be in the kilo-ohms range.

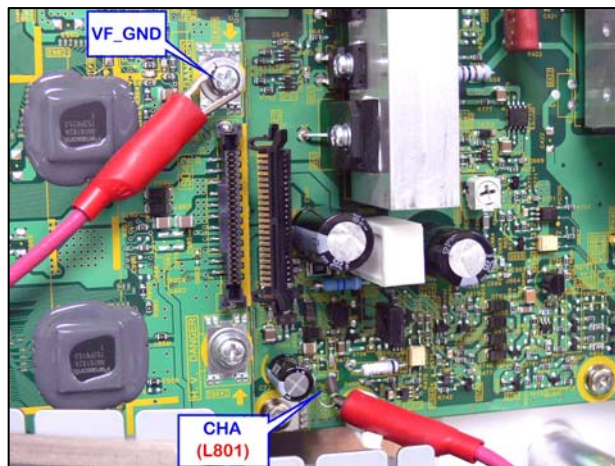


Figure 6

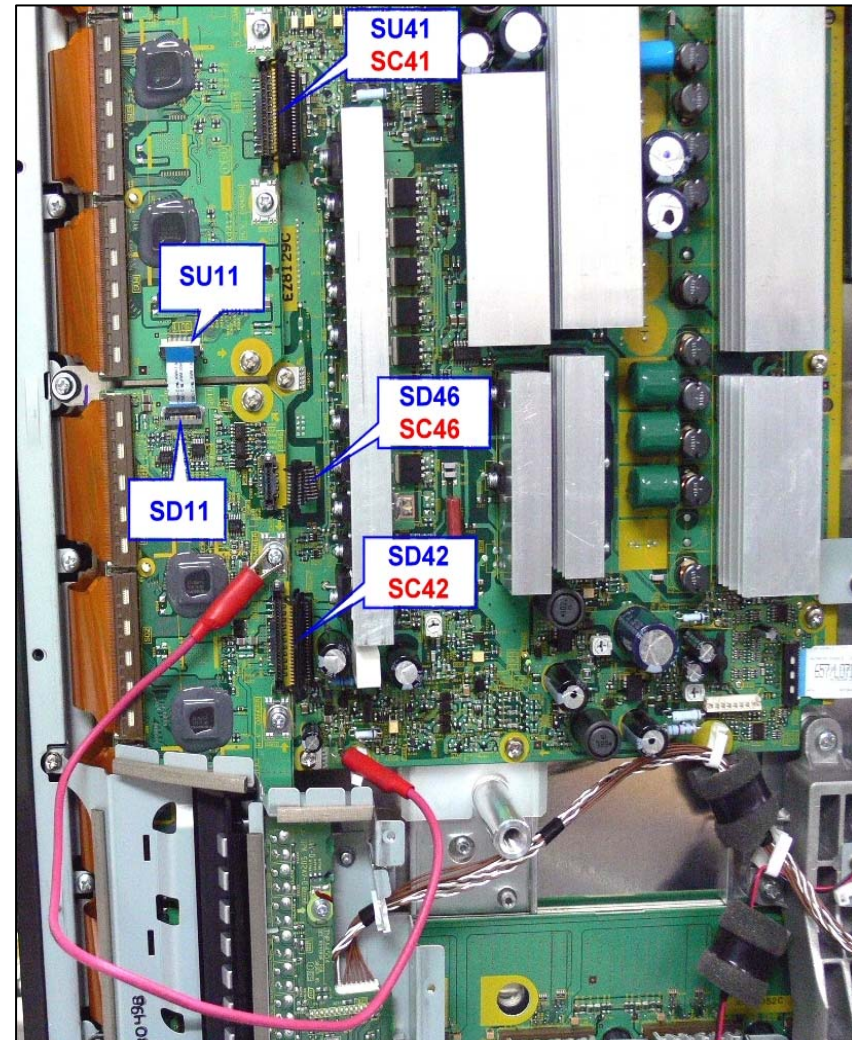
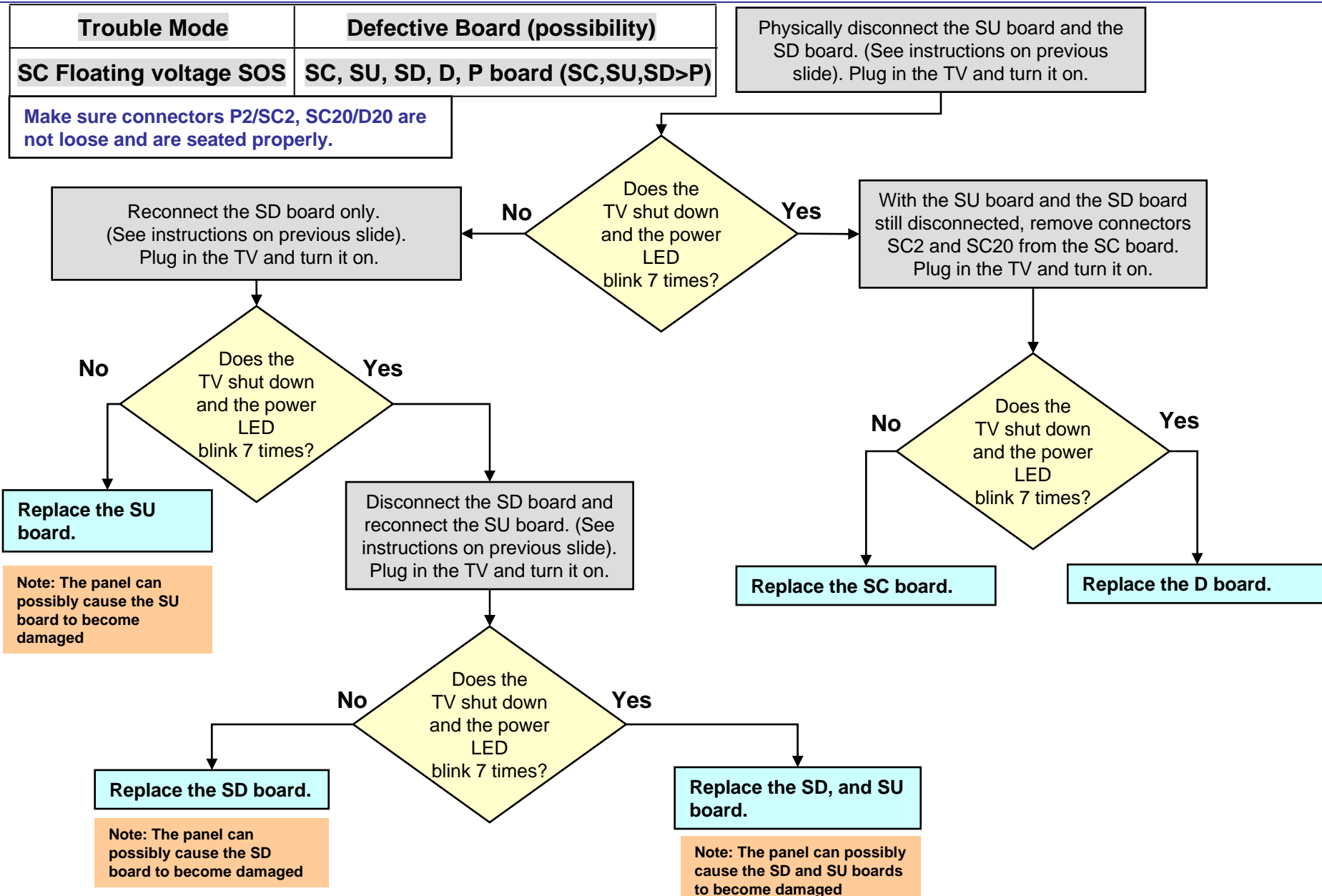


Figure 7

LED blinks 7 times



D16280 (D280) Location

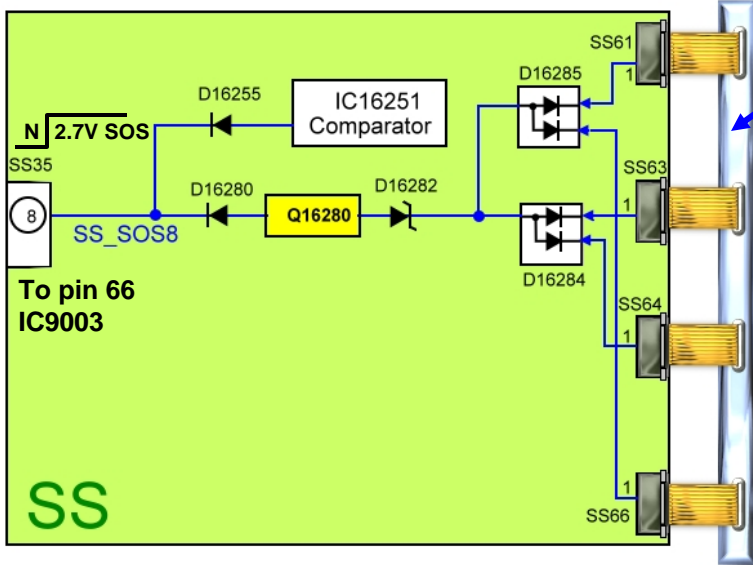


Figure 8

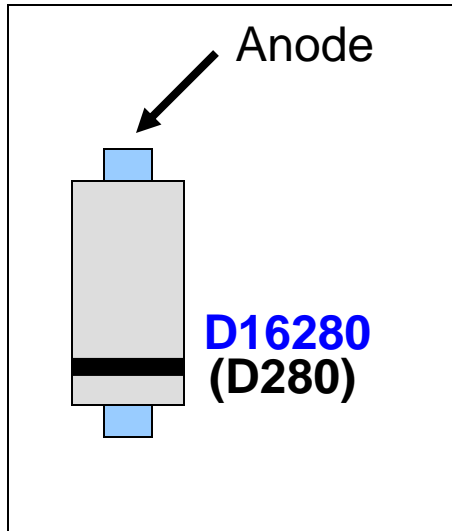


Figure 9

PANEL

Note: The location for this component may not be the same for all models

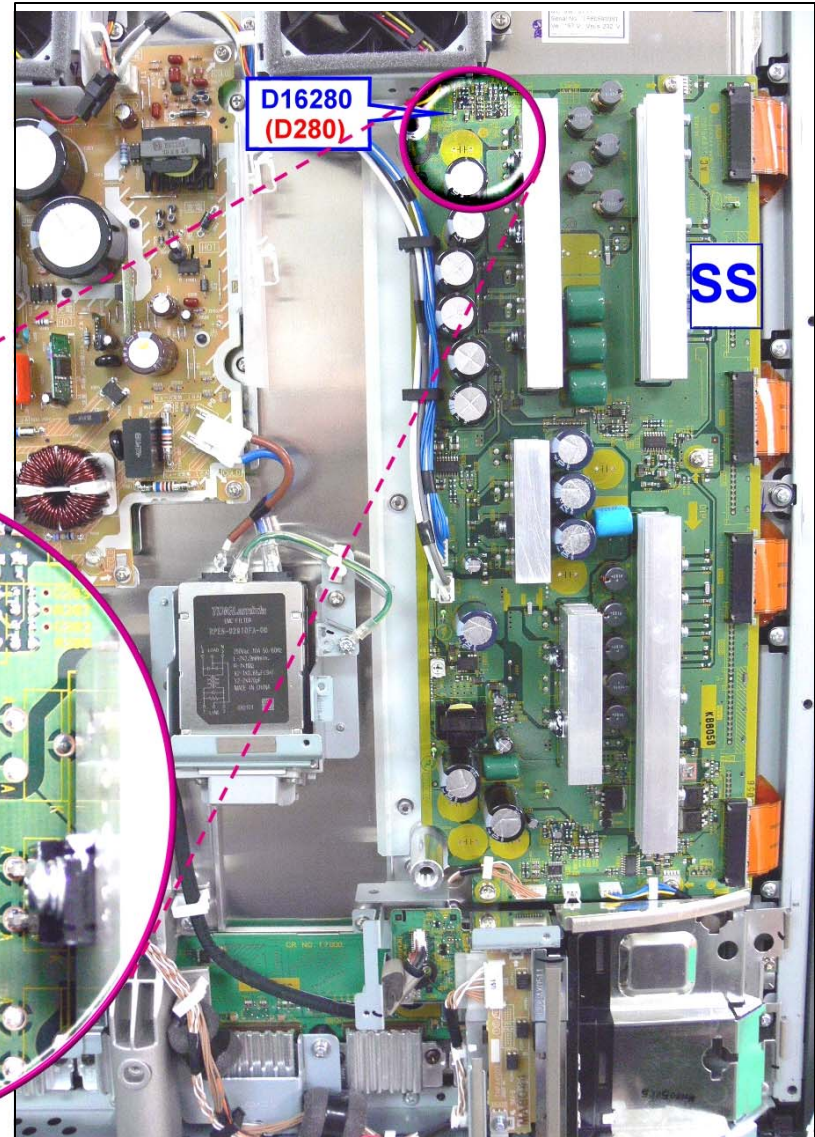
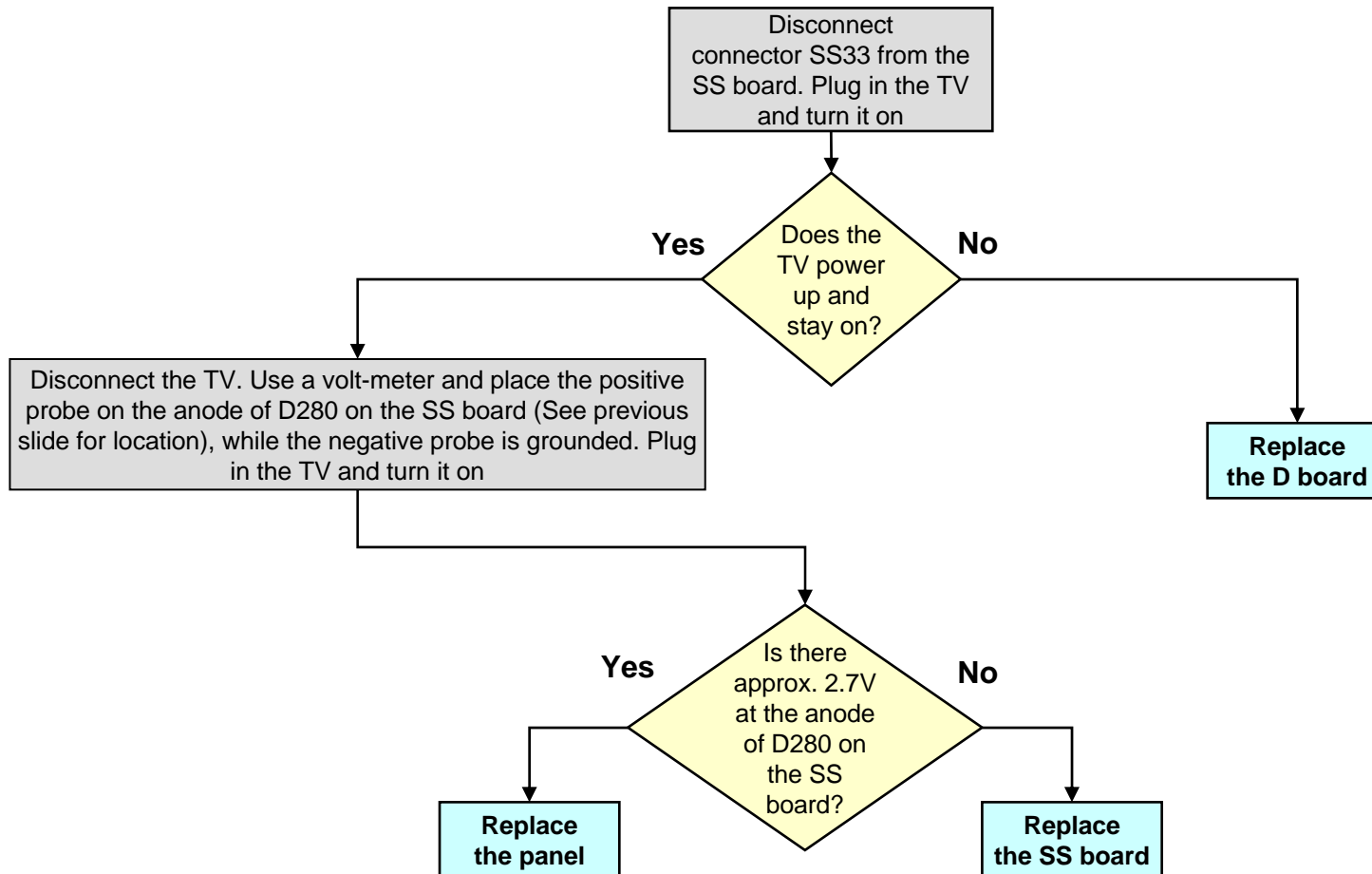


Figure 10

LED blinks 8 times

Trouble Mode	Defective Board (possibility)
SS Energy recovery SOS/Panel	SS, D board (SS>,D)/PDP

Warning: Disconnect AC Power prior to making any disconnection or connection



LED blinks 9 times

Trouble Mode	Defective Board
Panel Status	D Board

Warning: Disconnect AC Power prior to making any disconnection or connection

Replace the D board.

The power LED blinks 10 times at plug-in

Trouble Mode	Defective Board (Possibility)
Dead/No power	P, A, GS, K, GH

10 blinks condition can be caused by:

- Missing/Shorted F STB 15V
- Missing/Shorted SUB9V, SUB5V, and SUB3.3V
- Wrong diagnostic by the A board

Sub-Voltages Distribution Diagram

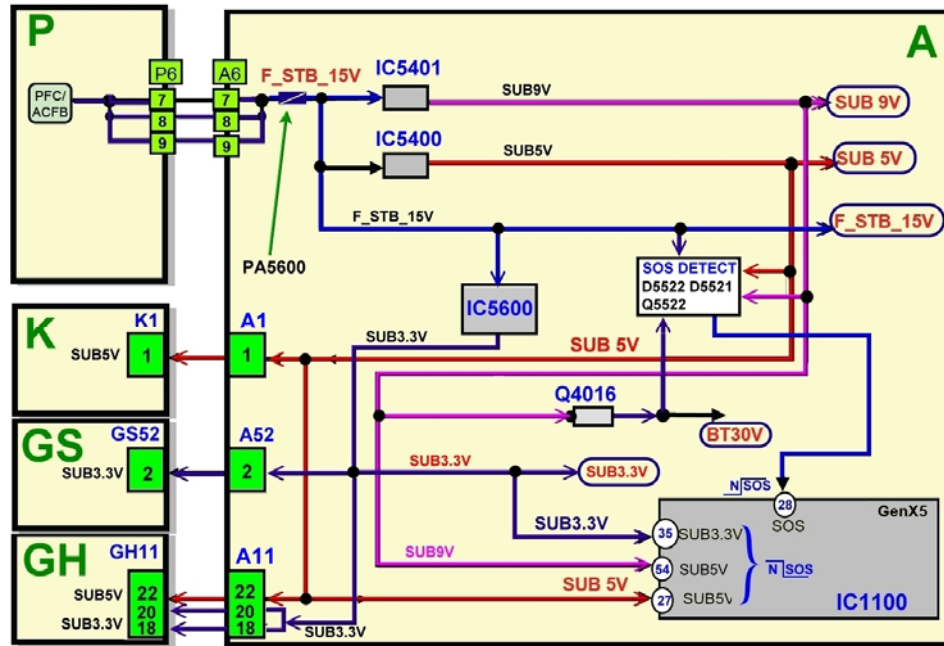


Figure 11

A board Connectors Location

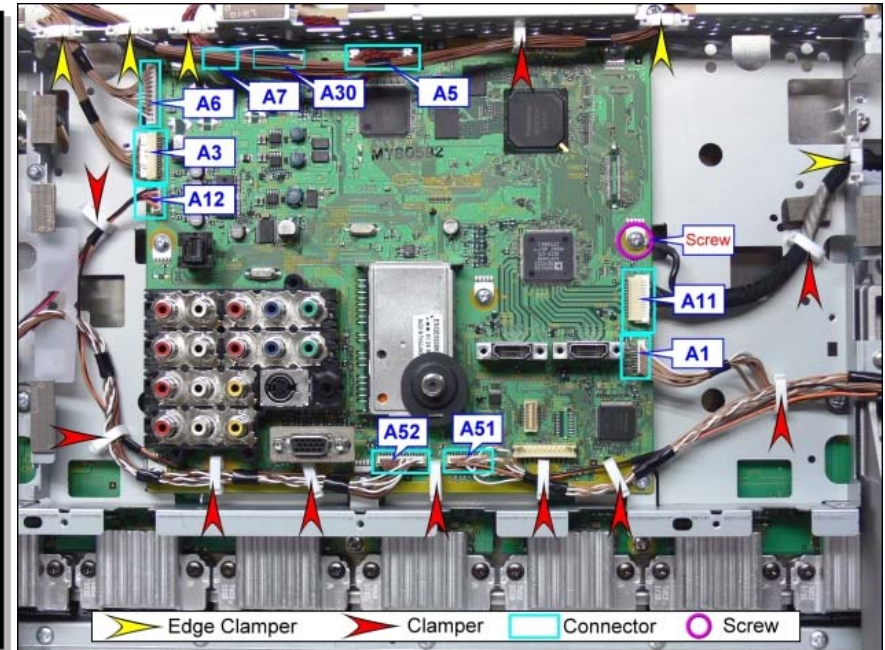


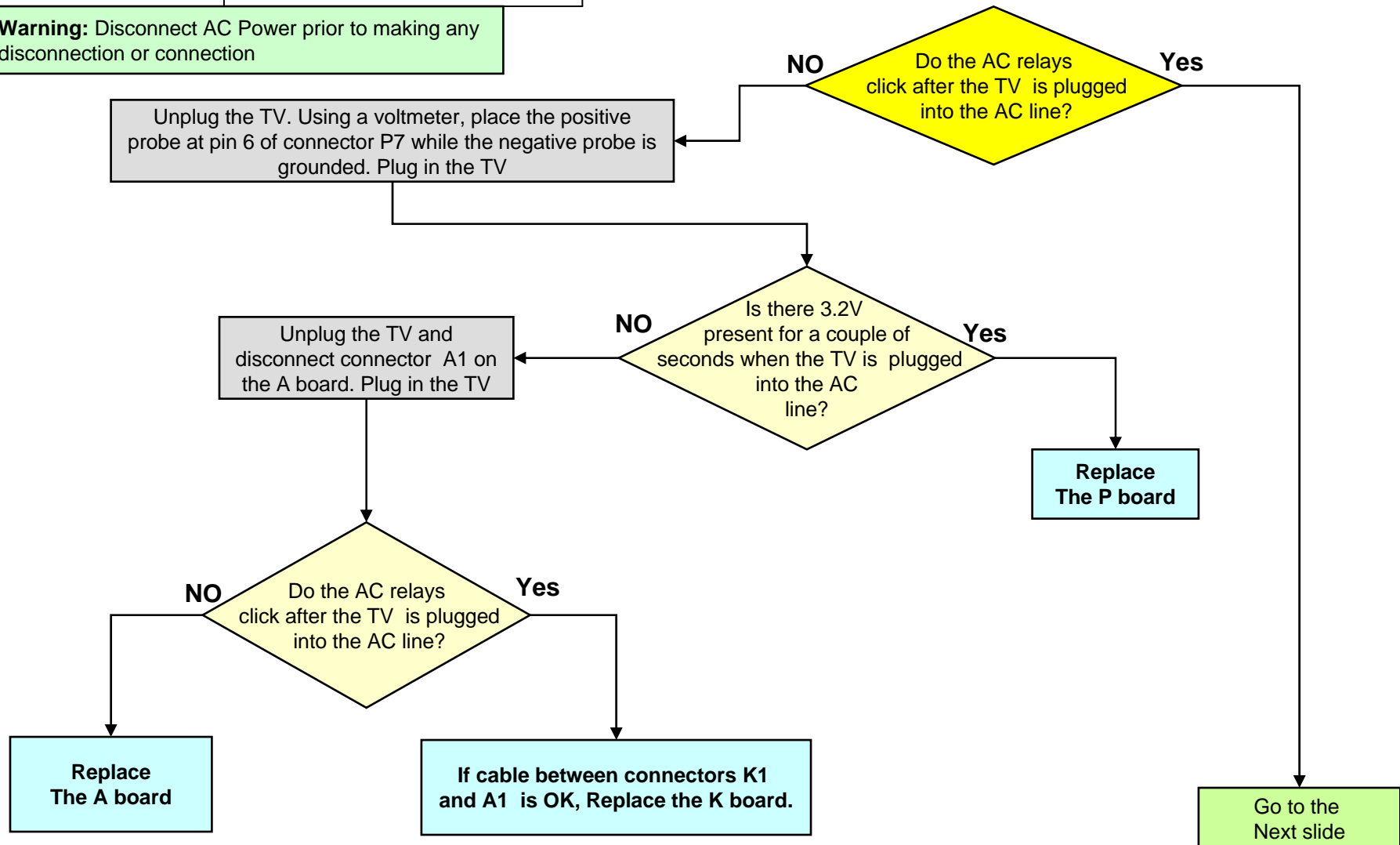
Figure 12

The power LED blinks 10 times at plug-in

Trouble Mode	Defective Board (Possibility)
Dead/No power	P, A, GS, K, GH

Warning: Disconnect AC Power prior to making any disconnection or connection

NOTE: When taking voltage reading, place your meter's probe on the test point or pin indicated before connecting the TV to the AC line. The voltage you intent to measure may only appear for a brief moment.

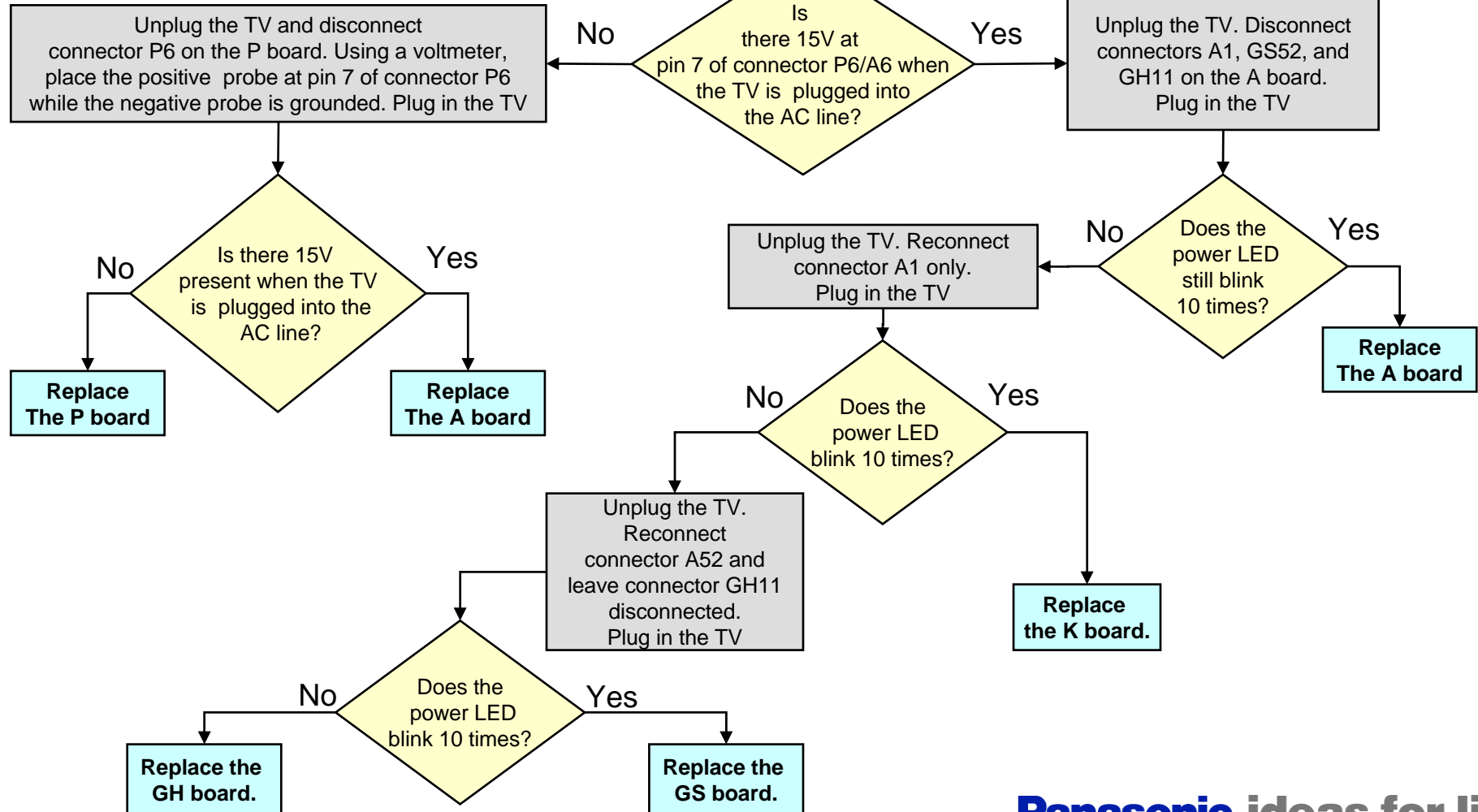


The power LED blinks 10 times at plug-in

NOTE: When taking voltage reading, place your meter's probe on the test point or pin indicated before connecting the TV to the AC line. The voltage you intent to measure may only appear for a brief moment.

Warning: Disconnect AC Power prior to making any disconnection or connection

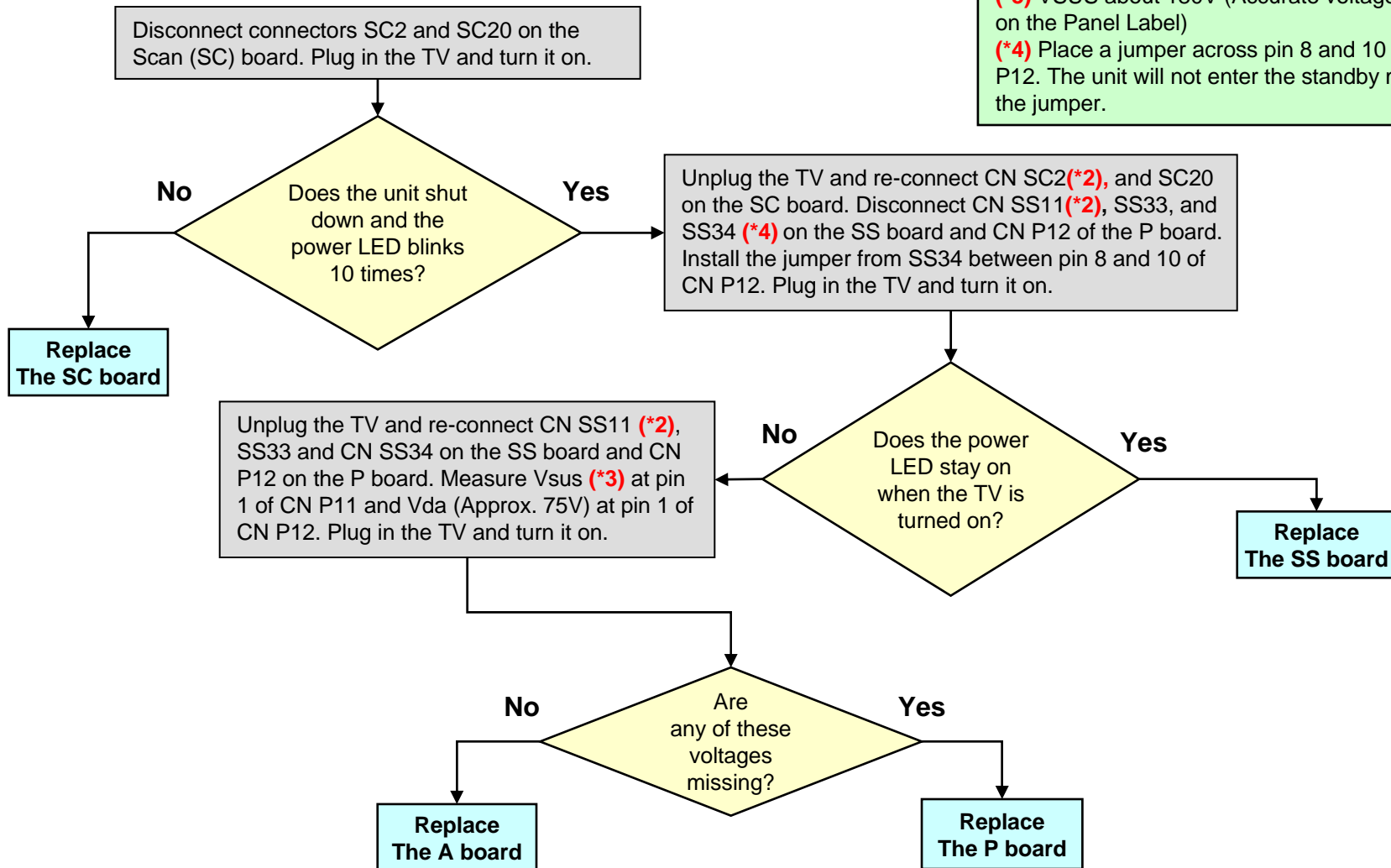
Continue from the previous slide



LED blinks 10 times after pressing the power button

Trouble Mode	Defective Board
SUB 5V SOS, Main 3.3V SOS DTV 9V SOS, Tuner Power SOS	P, A, SC,SS, GS, G Board

Warning: Disconnect AC Power prior to making any disconnection or connection
(*2) CAUTION: Before connecting P2/SC2 or P11/SS11, discharge is necessary to prevent potential shock caused by VSUS.
(*3) VSUS about 180V (Accurate voltage is provided on the Panel Label)
(*4) Place a jumper across pin 8 and 10 of connector P12. The unit will not enter the standby mode without the jumper.



Note: CN = Connector

LED blinks 11 times

Trouble Mode	Defective Board (Possibility)
Fan SOS	Fans, PB, A Board

Warning: Disconnect AC Power prior to making any disconnection or connection

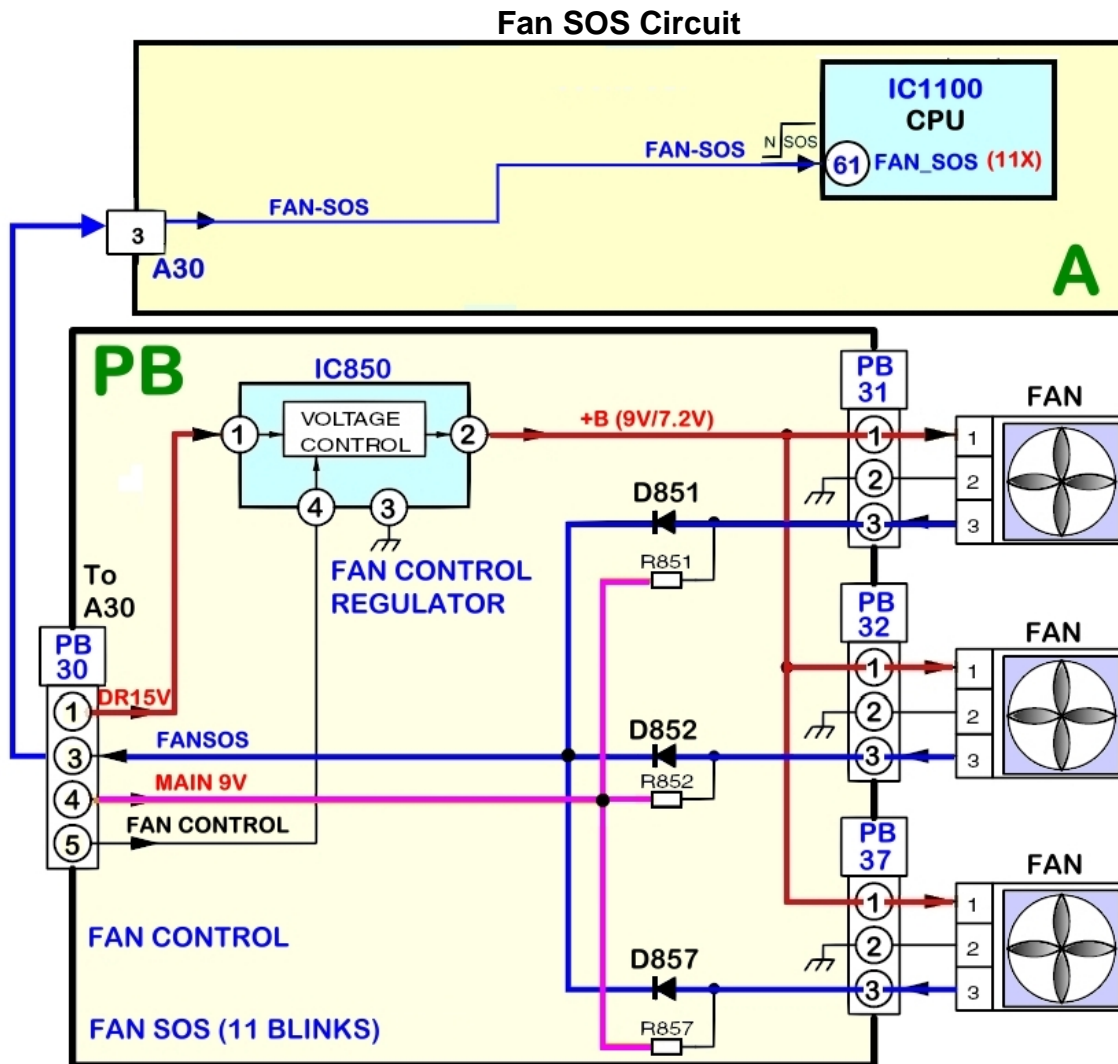


Figure 13

11 blinks condition happens:

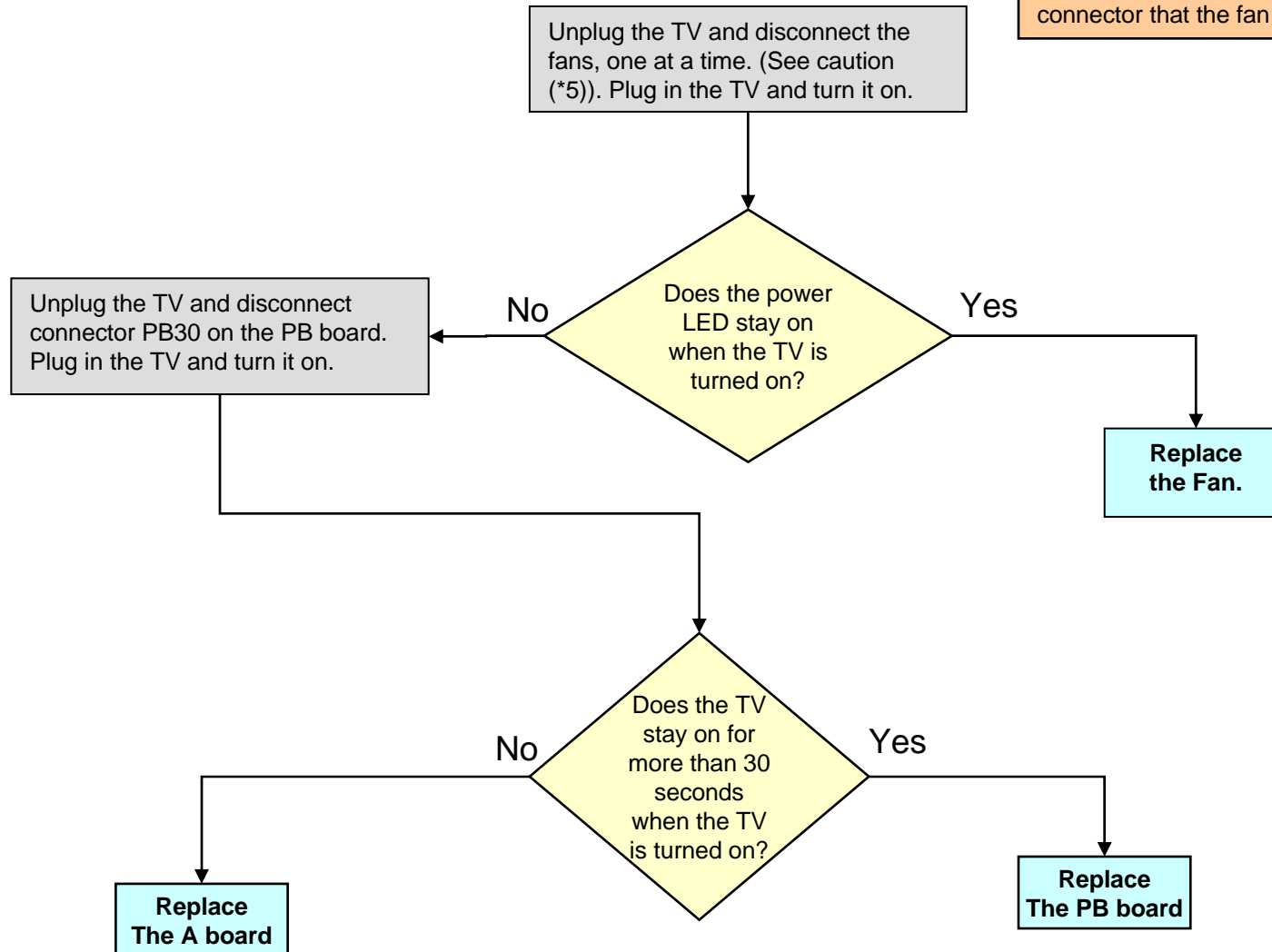
1. If one of the fans opens or increases resistance.
2. If the PB board becomes defective triggering shutdown.
3. If the CPU in the A board gives a wrong diagnostic triggering shutdown

LED blinks 11 times

Trouble Mode	Defective Board (Possibility)
Fan SOS	Fans, PB, A Board

Warning: Disconnect AC Power prior to making any disconnection or connection

Caution (*5) When a fan is disconnected, place a jumper between pins 2 and 3 of the connector that the fan was removed from.



LED blinks 12 times

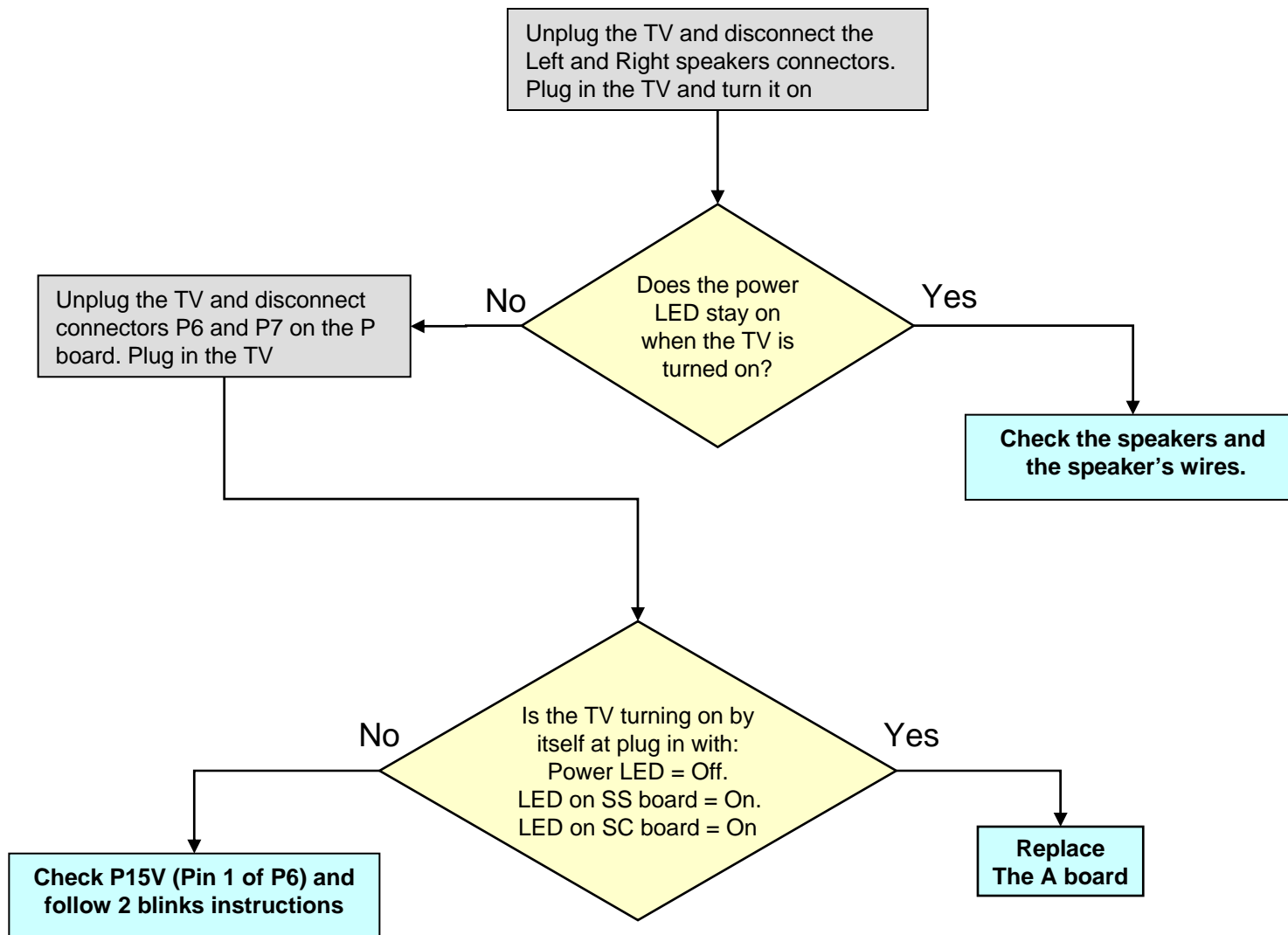
Trouble Mode

Defective Board (Possibility)

Sound SOS

Speakers, A Board

Warning: Disconnect AC Power prior to making any disconnection or connection



LED blinks 13 times

Trouble Mode	Defective Board
Communication error with IC8001	A Board

Warning: Disconnect AC Power prior to making any disconnection or connection

TH-42PZ80/85/800U
TH-46PZ80/85/800U
TH-50PZ80/85/800U

TH-46PZ850U
TH-50PZ850U

Disconnect A52 on the A Board (See Figure 1). Plug in the TV and turn it on

Disconnect A9 on the A Board. Plug in the TV and turn it on

No

Yes

Is the power LED still blinking?

Replace the GS board

Unplug the TV and disconnect connectors P6 and P7 on the P Board (See Figure 1). Plug in the TV.

No

Yes

Is the TV turning on by itself with the following conditions?
Power LED = Off
SC LED = On
SS LED = ON

Replace the D board

Replace the A board

A board Connectors Location

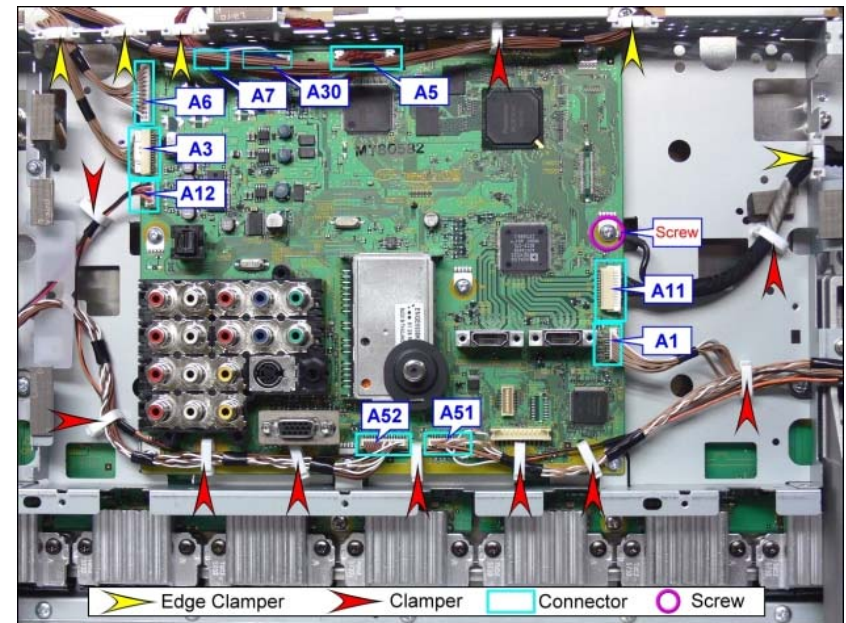
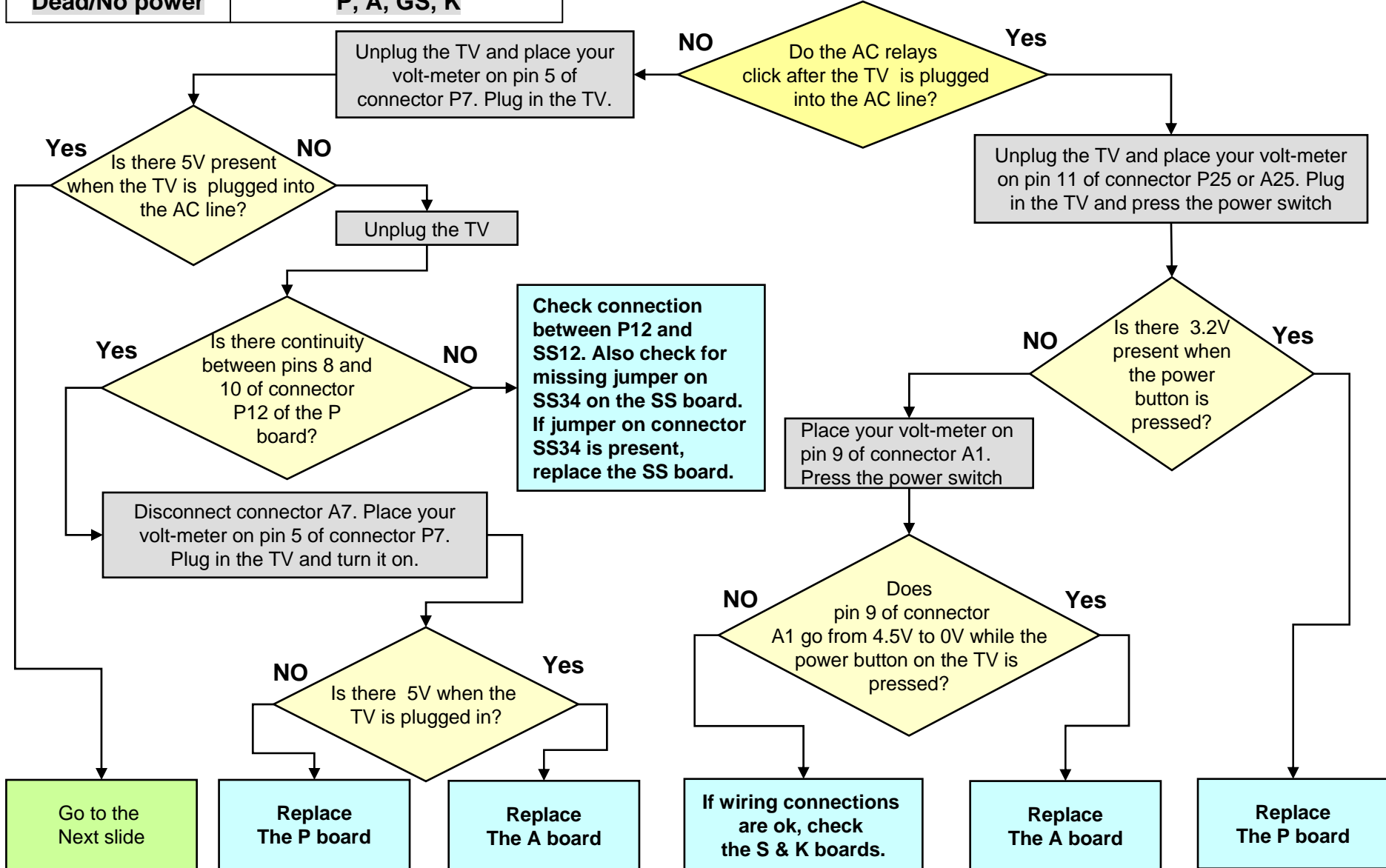


Figure 14

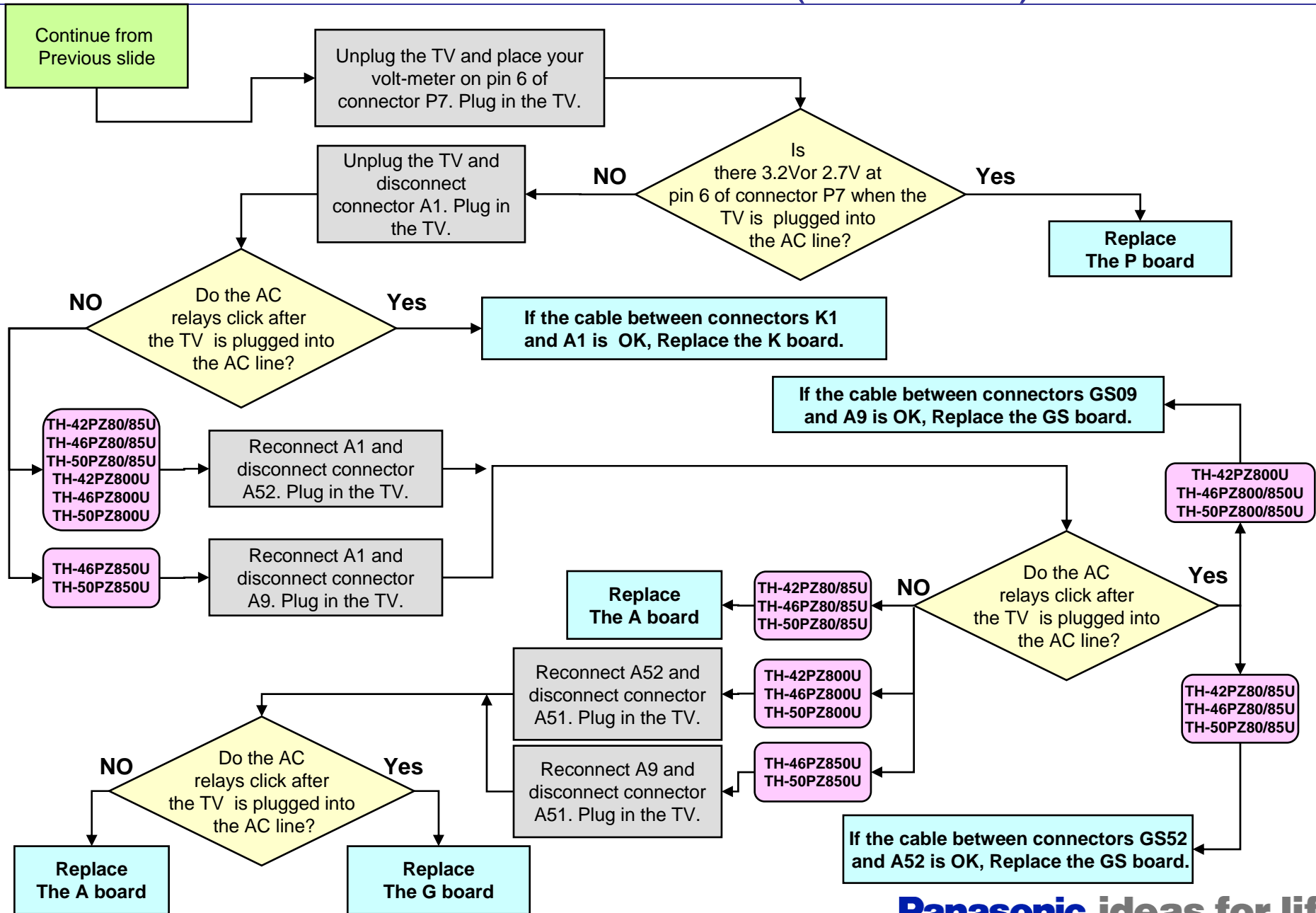
No Power/Dead Unit

Warning: Disconnect AC Power prior to making any disconnection or connection

Trouble Mode	Defective Board (Possibility)
Dead/No power	P, A, GS, K

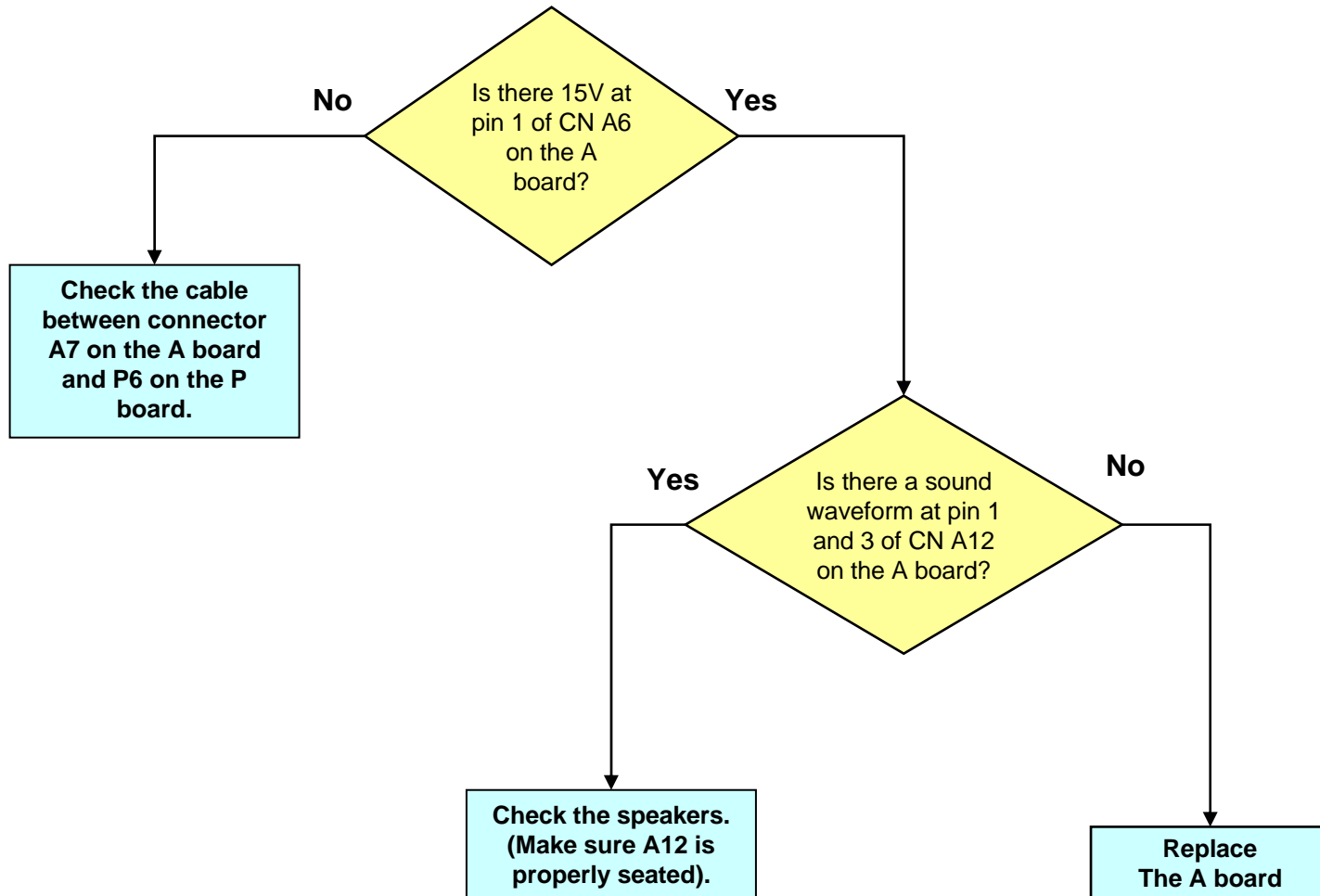


No Power/Dead Unit (Continue)



No Sound

Warning: Disconnect AC Power prior to making any disconnection or connection



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Troubleshooting for Picture Problems

Diagnostic Method for Troubleshooting PDP Television

<Introduction>

1. There are two kinds of picture problem

- 1) Abnormal picture
- 2) No picture

2. Basic concept of determining the defective board

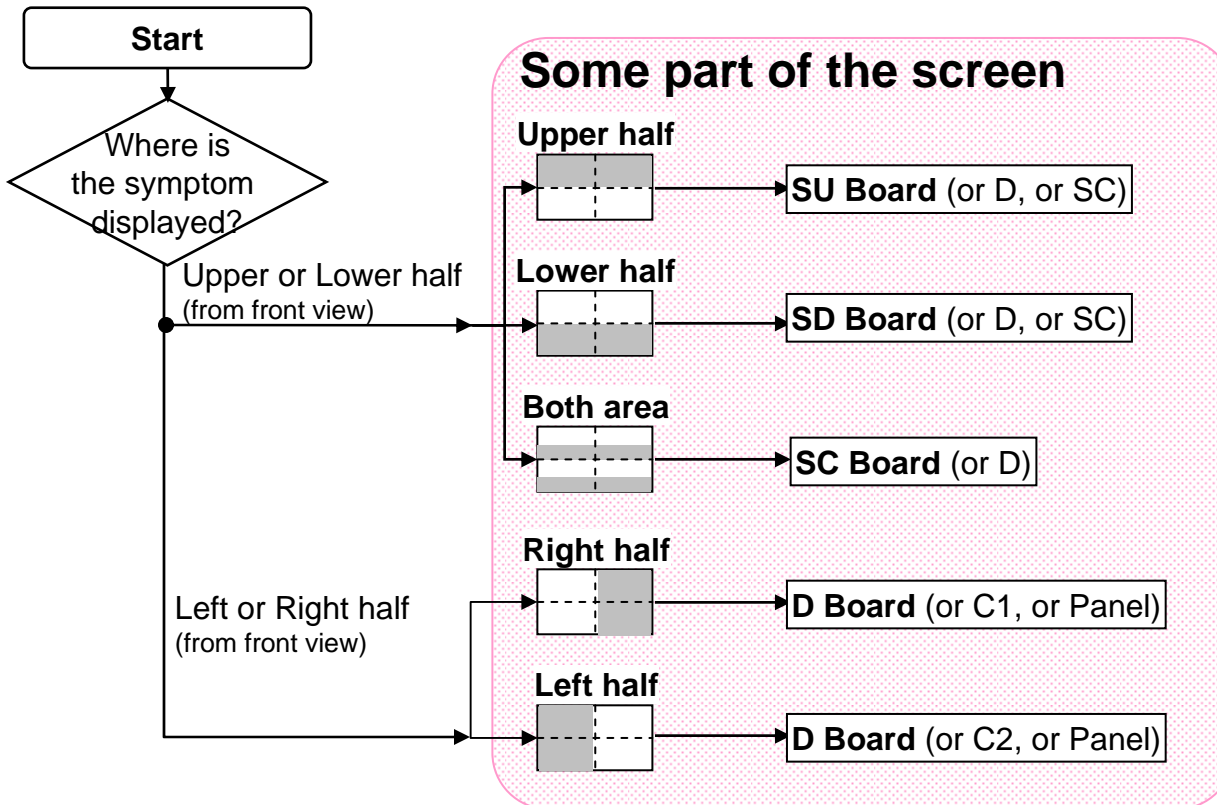
- 1) Which area is the symptom displayed on the screen?
 - A. Part of the screen
 - B. All over the screen

3. Adjustment after PCB exchange

- 1) After exchanging the following boards, voltage adjustment is required.
P board, SC board, SS board => Please refer to “Service Manual”.

Troubleshooting for Picture Trouble

<How to determine the defective board>



***Note** :Panel gas leakage



Because of a very small crack in the panel, gas leakage will start. In this picture, gas leakage started at the left top corner. Finally, gas leakage will lead to the symptom **"No picture with buzz noise"**.

Diagnosis for Picture Problem (All Over the Screen)

<Symptom>

Abnormal Color, Vertical Line, Sync Error, Noise Picture

<Model>

All Models

<Sample Picture>

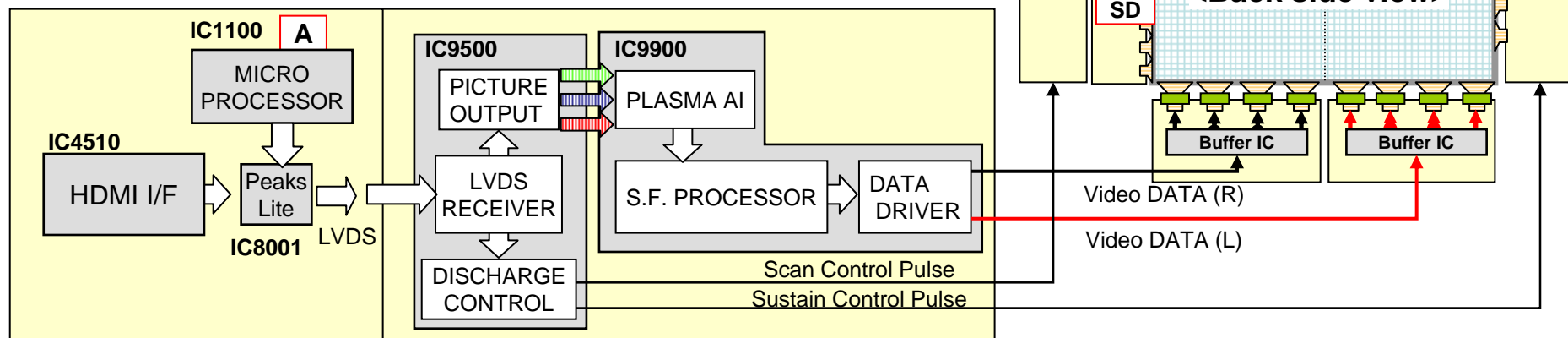


<Possible Cause>

D Board, SC Board, SU Board, SD Board

<Block Diagram>

e.g. TH-42PZ80U



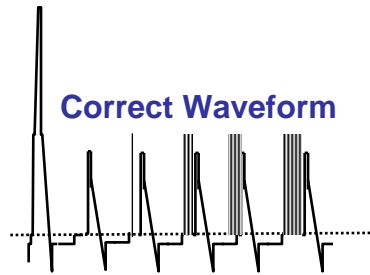
Diagnosis for Picture Problem (All Over the Screen)

<Diagnosis (2)>

Confirm the waveform at "TPSC1" of the SC board

<Result>

Waveform **OK**

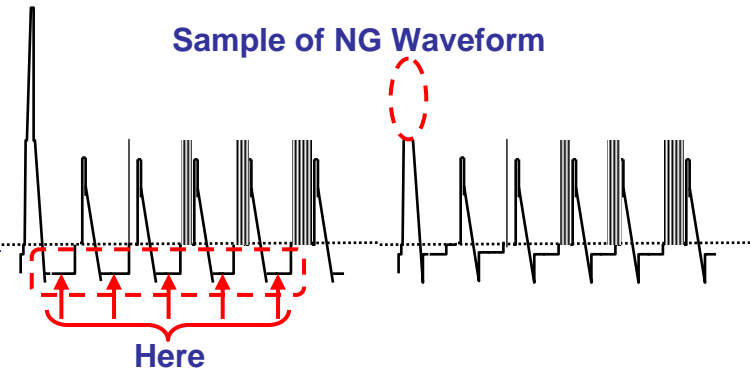


<Cause>

D Board defect

<Result>

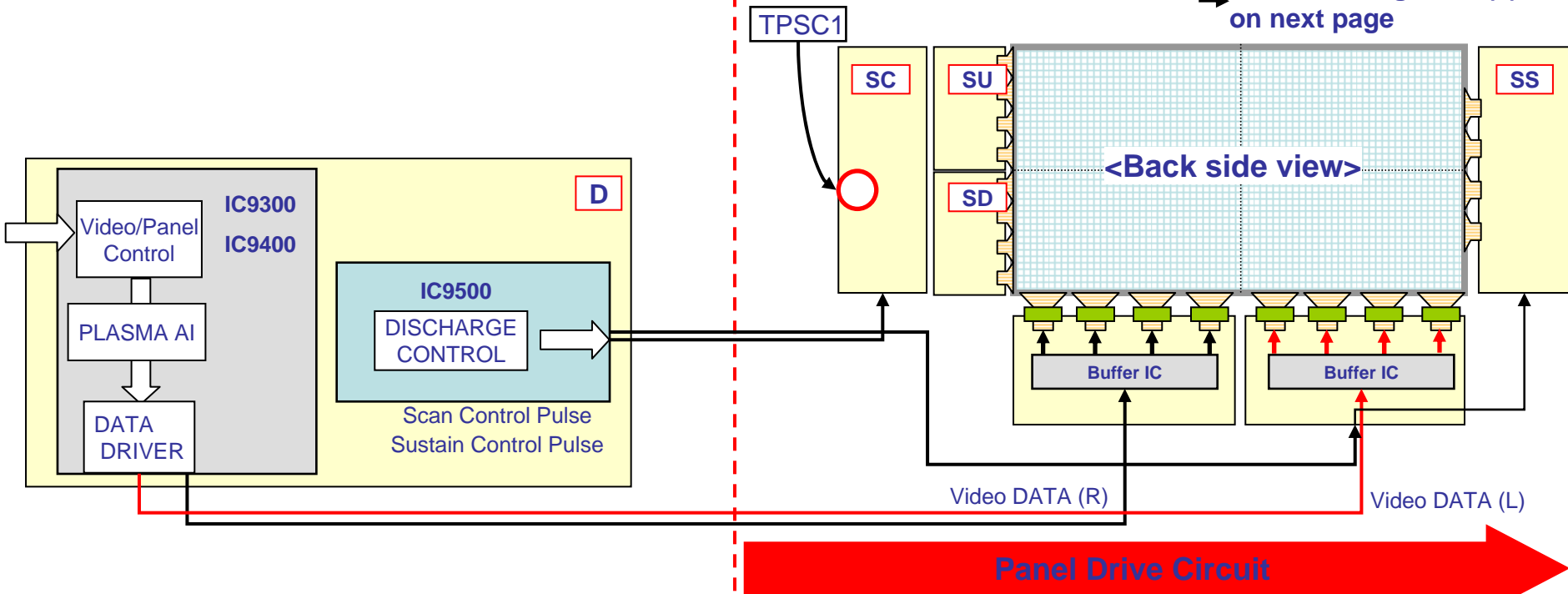
Waveform **NG**



<Cause>

SC,SU,SD Board defect

Refer to "Diagnosis (3)"
on next page



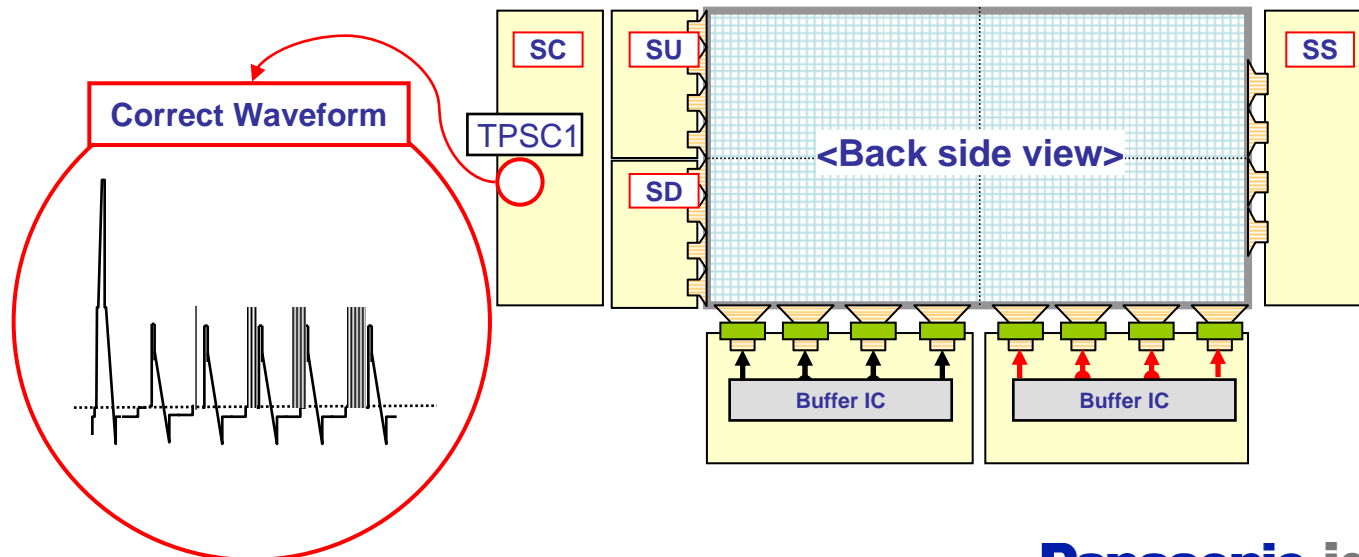
Diagnosis for Picture Problem (All Over the Screen)

<Diagnosis (3)>

Confirm the waveform at “TPSC1” after removing the SU or SD Board from the SC Board

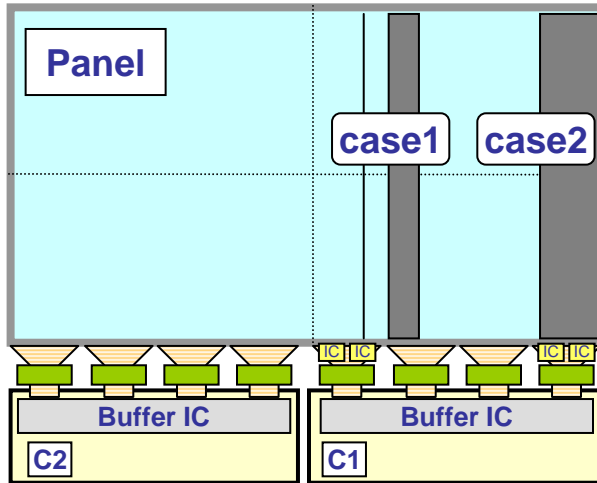
<Result>

Situation	Condition	Condition 2	Cause
Disconnect SU Board (Connect SD)	<u>Waveform OK?</u>	Bottom half of Picture OK?	SU Board
Disconnect SD Board (Connect SU)	<u>Waveform OK?</u>	Upper half of Picture OK?	SD Board
Disconnect the SU and SD Boards	<u>Waveform OK?</u>	Screen should be black	SC Board



Diagnosis of Vertical Line Problem

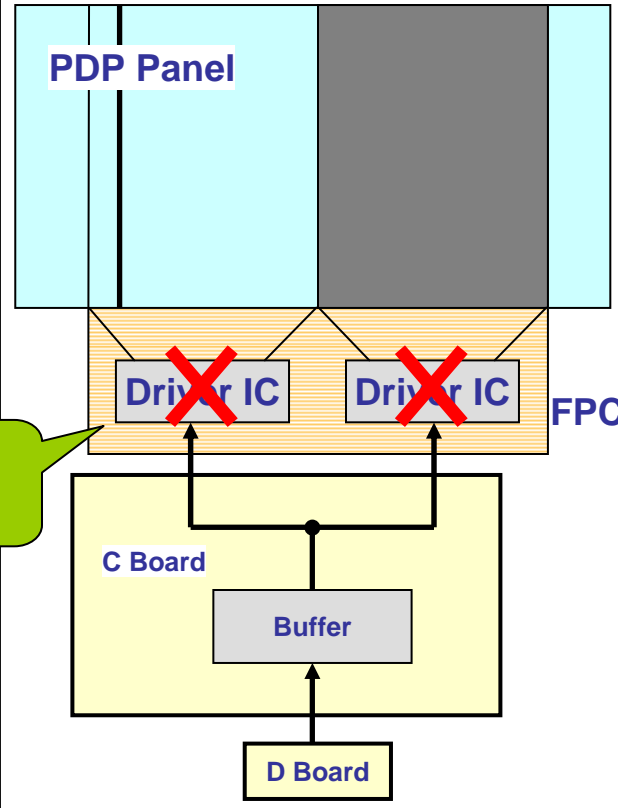
NG Area (Front view)



case1
Thin vertical line
or 1 block not lighting

**PDP panel (Driver IC) NG
(or D board, or C board)**

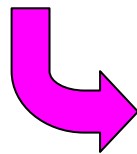
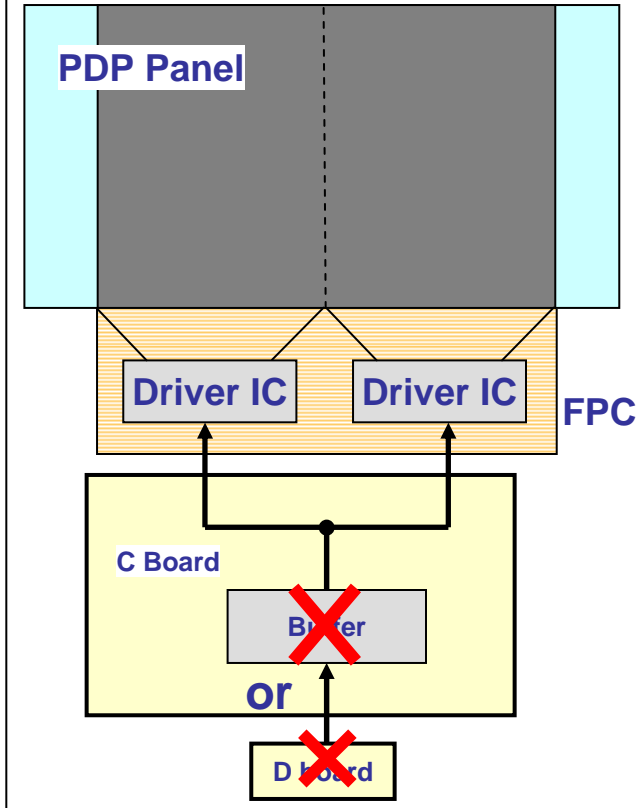
1 Line 1 Block



case2
A number of blocks
not lighting

D board (or C board) NG

2 Blocks



Drive
IC(2)
inside

Picture Trouble at Upper or Lower half

<Symptom>

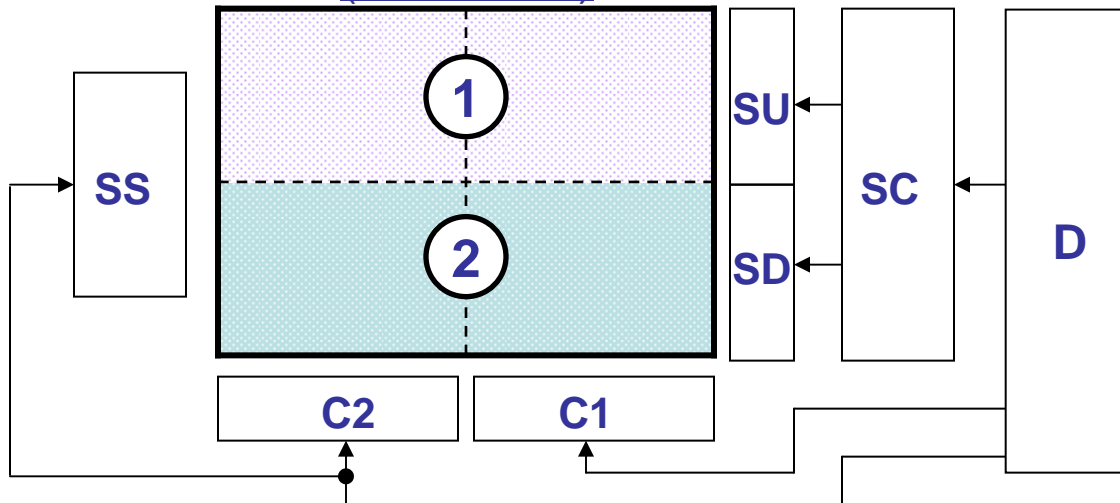
No Picture, Picture noise, Full Horizontal line, etc.

<Models>

42 inch (HD Panel)

<NG Area>

(Front view)



<Defective board>

① Trouble at Upper half : **SU-board (SC or D) defect**

② Trouble at Lower half : **SD-board (SC or D) defect**

(*) Full Horizontal line at both area : **SS-board (D) defect**

<Actual Symptom>

Symptom : **Horizontal line (Lower side)**

Result : **SD board**



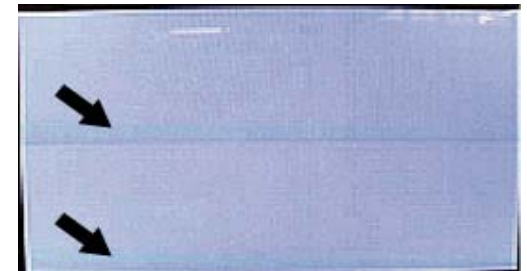
Symptom : **Horizontal line (Upper side)**

Result : **D board**



Symptom : **Horizontal line (Both area)**

Result : **SS board**



Picture Trouble at Right or Left half (50 Inch)

<Symptom>

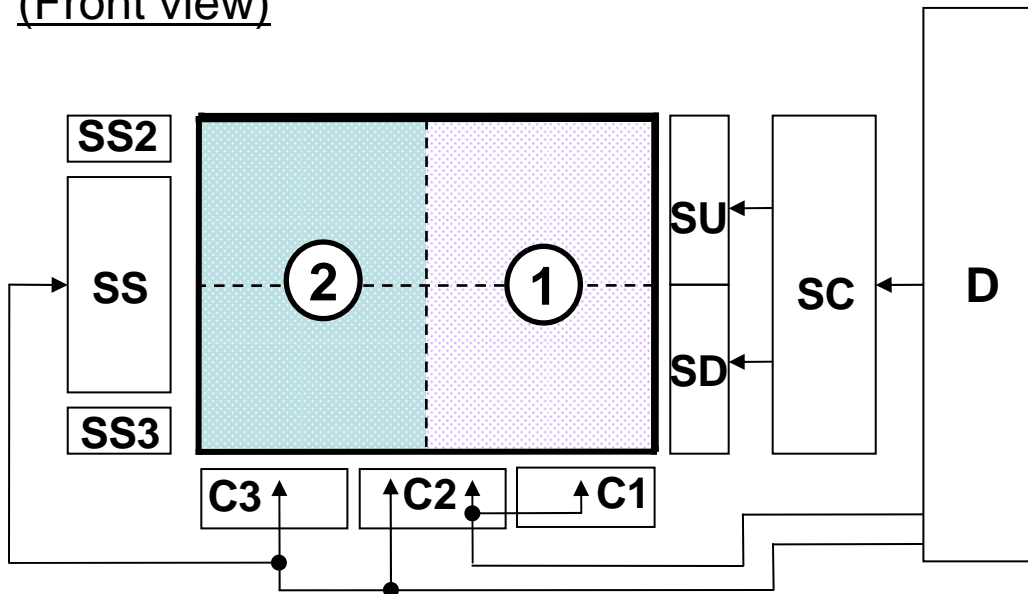
No Picture, Picture noise, etc.

<Models>

50inch (HD Panel)

<NG Area>

(Front view)



<Defective board>

① Trouble at Right half : **D-board defect**

② Trouble at Left half : **D-board defect**

<Actual Symptom>

Symptom : **Cyan noise (Right side)**

Result : **D board**



Picture Trouble at Right or Left half (42 Inch)

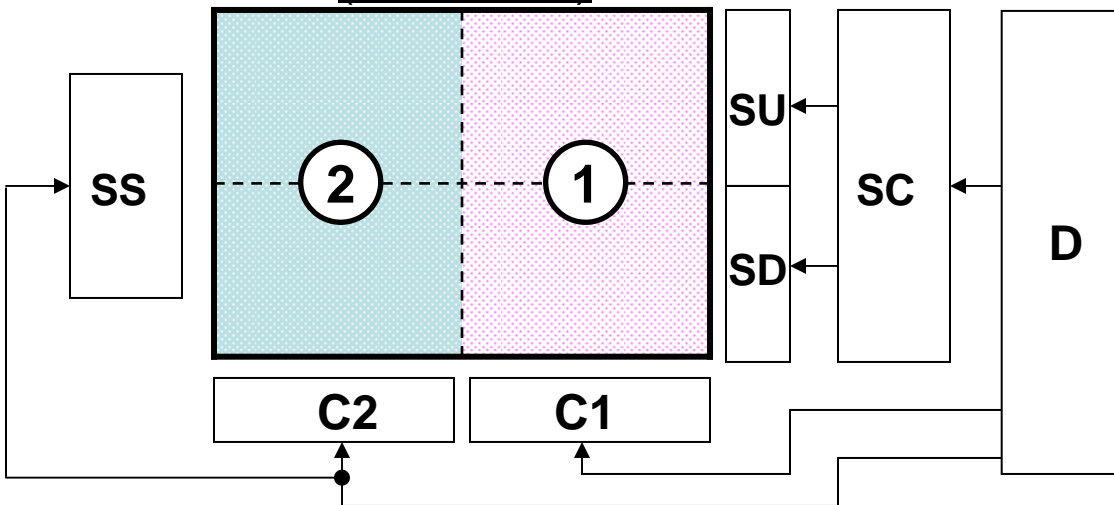
<Symptom>

No Picture, Picture noise, Full Vertical line, etc.

42 inch (HD Panel)

<NG Area>

(Front view)



<Defective board>

① Trouble at Right half : **D or C1 board (Panel) defect**

② Trouble at Left half : **D or C2 board (Panel) defect**

<Actual Symptom>

Symptom : **Vertical line**

Result : **Panel**



Picture Trouble in 50 Inch Models

<Symptom>

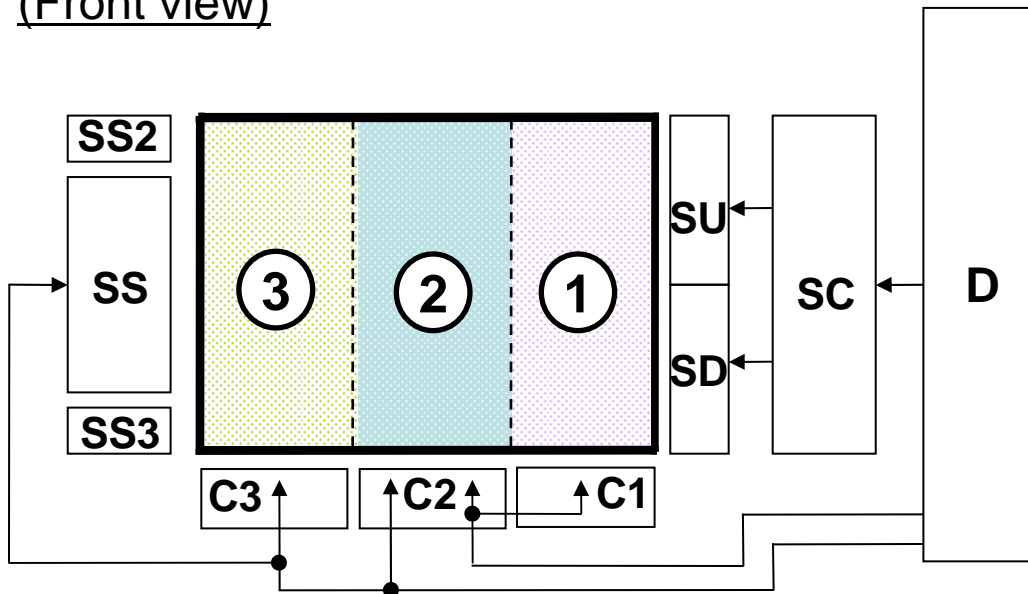
No Picture, Picture noise, Half Vertical line, etc.

<Models>

50inch (HD Panel)

<NG Area>

(Front view)



<Defective board>

- ① Trouble at Upper right :
C1 board or Panel defect
- ② Trouble at Upper middle :
C2 board or Panel defect
- ③ Trouble at Upper left :
C3 board or Panel defect

Picture Trouble all Over the Screen

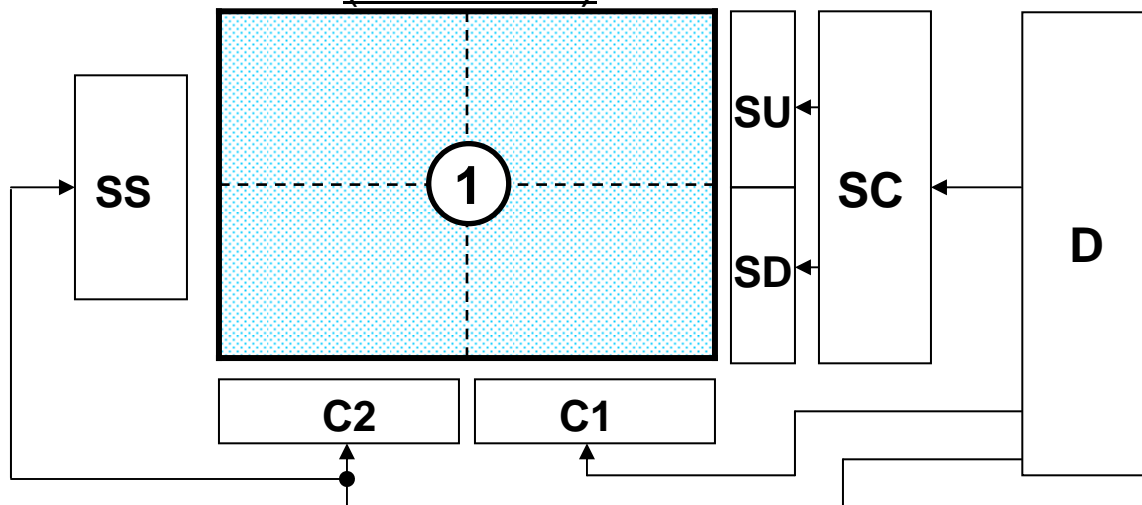
<Symptom>

Picture noise, Full Vertical line, etc.

<Models>

42inch (HD Panel)

<NG Area (e.g. 42 inch Panel)> (Front view)



<Defective board>

① Trouble at All area : **D or SC board**
(SU,SD) defect

<Actual Symptom>

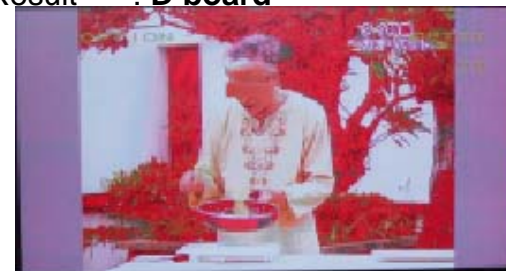
Symptom : **Vertical line (All over screen)**

Result : **D board**



Symptom : **White balance NG**

Result : **D board**



Symptom : **Abnormal Picture**

Result : **SC board**



Examples of Symptoms and Remedies

Picture Problem (All over the screen)

<Symptom> Noise Picture

<Photo of Symptom>

Model : 42 inch Result : A Board



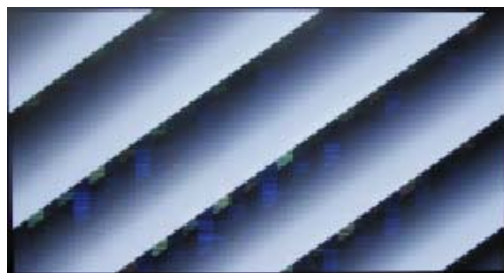
Model : 42 inch
Result : A Board



Model : 42 inch
Result : SC Board



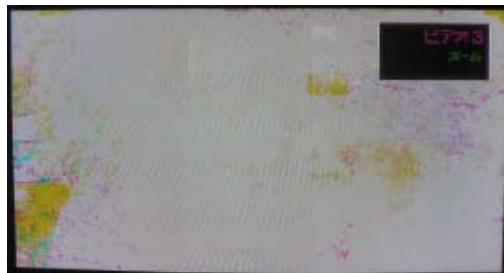
Model : 42 inch
Result : D Board



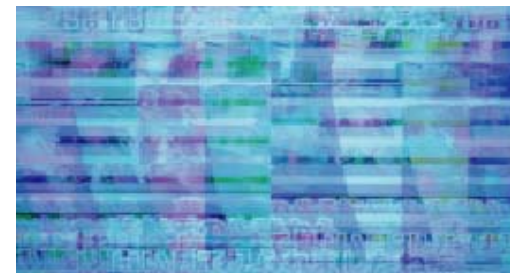
Model : 42 inch
Result : SC Board



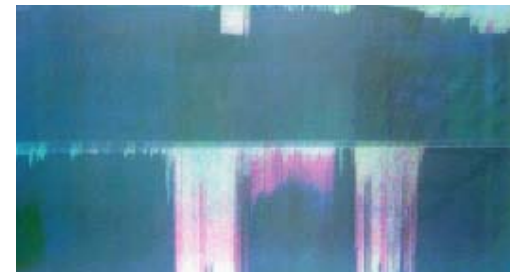
Model : 42 inch
Result : SC Board



Model : 42 inch
Result : D Board



Model : 42 inch
Result : SC Board



Model : 42 inch
Result : SC Board



Picture Problem (All over the screen)

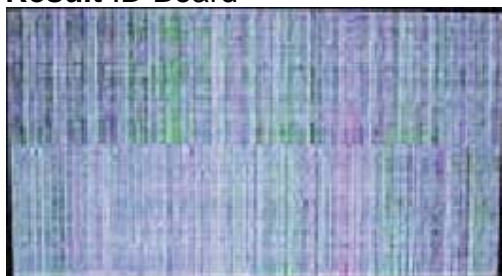
<Symptom> Vertical Line

<Photo of Symptom>

Model : 42 inch
Result : D Board



Model : 42 inch
Result : D Board



Model : 42 inch **Result** : D Board



Model : 42 inch
Result : D Board



Model : 42 inch
Result : D Board



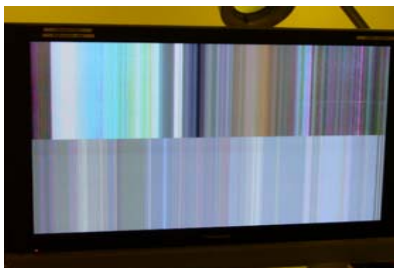
Model : 42 inch
Result : D Board



Model : 42 inch
Result : SC Board



Model : 42 inch
Result : SD Board



Model : 42 inch
Result : SD Board



Picture Problem (All over the screen)

<Symptom> Abnormal Color, White Balance NG

<Photo of Symptom>

Model : 42 inch
Result : D Board



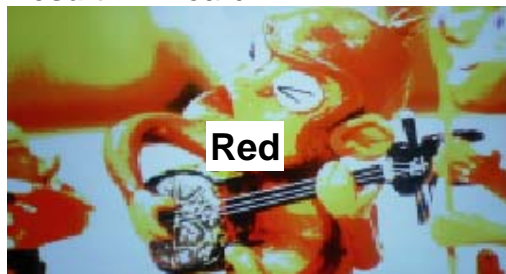
Model : 42 inch
Result : D Board



Model : 42 inch
Result : D Board



Model : 42 inch
Result : D Board



Model : 42inch
Result : D Board



Model : 42 inch
Result : D Board



Model : 42 inch
Result : D Board



Model : 42 inch
Result : D Board



Model : 42 inch
Result : D Board



Picture Problem (All over the screen)

<Symptom> Sync Error

<Photo of Symptom>

Model : 42 inch
Result : D Board



Model : 42 inch
Result : D Board



Model : 42 inch
Result : D Board



Model : 42 inch
Result : D Board



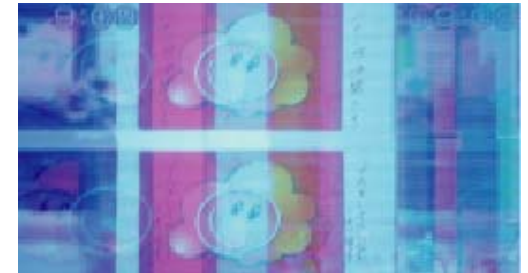
Model : 42 inch
Result : D Board



Model : 42 inch
Result : D Board



Model : 42 inch
Result : D Board



Model : 42 inch
Result : D Board



Picture Problem (Right half or Left half)

<Symptom> Vertical Line

<Photo of Symptom>

Model : 50 inch
Result : D Board



Model : 42 inch
Result : D Board



Model : 42 inch
Result : D Board



Model : 42 inch
Result : D Board



Model : 42 inch
Result : D Board



Model : 42 inch
Result : D Board



Model : 42 inch
Result : D Board



Model : 42 inch
Result : D Board

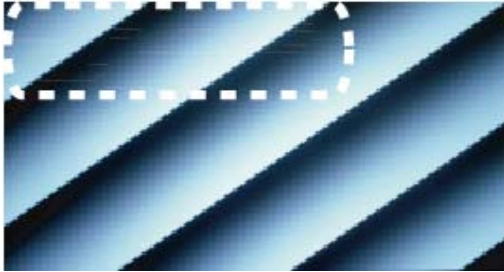


Picture Problem (Upper or Bottom)

<Symptom> Vertical Line

<Photo of Symptom>

Model : 42 inch
Result : D Board



Model : 42 inch
Result : D Board



Model : 42 inch **Result** : D Board



Model : 42 inch
Result : SU Board



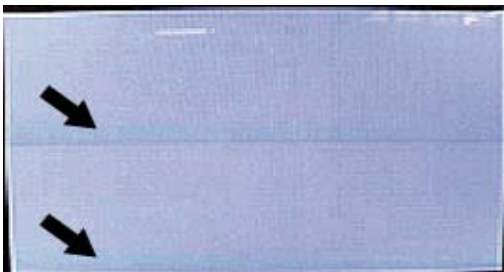
Model : 42 inch
Result : D Board



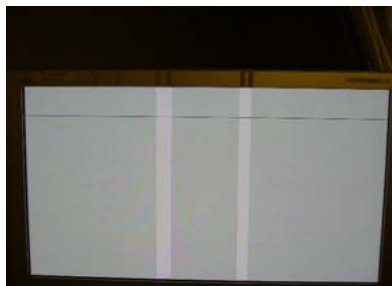
Model : 42 inch
Result : SC Board



Model : 42 inch
Result : SS Board



Model : 42 inch
Result : SU Board



Self-check Procedure

CHASSIS: GPH11D

All models

NOTE: This procedure does
not reset the TV

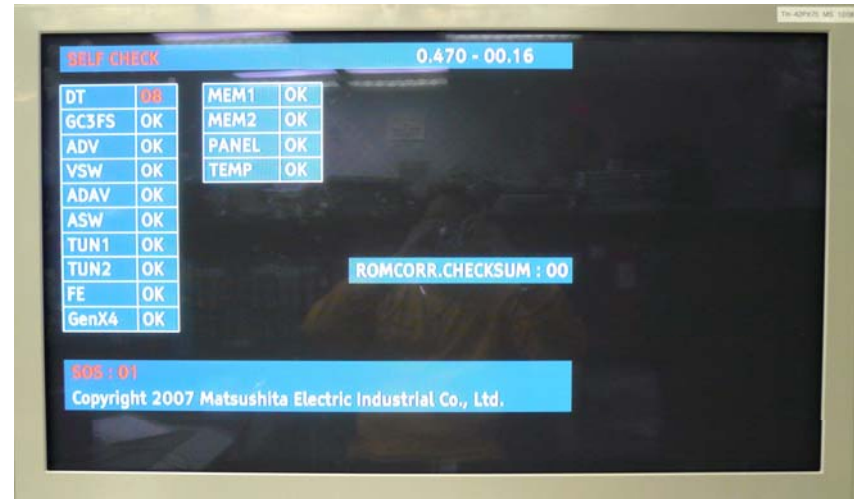
How to access the self-check screen to reset the unit.

Select a television channel, and while pressing the [VOLUME (-)] button on the main unit, press the [OK] button on the remote control for more than 3 seconds.

How to Exit the self-check screen

Press and hold the Power button on the TV for 5 seconds or disconnect the AC cord from the wall outlet.

Self-check Screen



TV volume down & OK on remote only does a basic IC self check. It does NOT Reset the TV.

It does not clear channel programmed settings, picture settings, channel labels, LOCK mode settings, or password.

Using this method, it shows the unit firmware version (Peaks 1.050 and GenX 1.00) and it checks IC communications ONLY.

This is more useful to identify the firmware version without having to decode the info in the setup menu About/Version screen.

Reset Procedure

CHASSIS: GPH11D

All models

To Reset the Unit, turn the TV on and while pressing the “VOLUME (-)” button on the main unit, press the “Menu” button on the remote control for more than 3 seconds. The Self-Check menu appears on screen. Then, disconnect the AC cord from the wall outlet.

Note: All customer programmed parameters will be erased.